

**5.2.9 LTE Band 41**

|            |           |       | Conducted Power(dBm) |       |        |        |       |        |
|------------|-----------|-------|----------------------|-------|--------|--------|-------|--------|
| Modulation |           |       | QPSK                 |       |        | 16QAM  |       |        |
| Band       | Bandwidth | RB    | 39675                | 40620 | 41565  | 39675  | 40620 | 41565  |
|            | (MHz)     |       | 2498.5               | 2593  | 2687.5 | 2498.5 | 2593  | 2687.5 |
| 41         | 5         | 1@0   | 22.21                | 22.05 | 22.10  | 22.15  | 21.93 | 22.20  |
|            |           | 1@12  | 22.35                | 22.16 | 22.24  | 22.25  | 22.06 | 22.27  |
|            |           | 1@24  | 22.24                | 22.01 | 22.15  | 22.15  | 21.91 | 22.23  |
|            |           | 12@0  | 22.21                | 22.05 | 22.24  | 22.19  | 22.07 | 22.28  |
|            |           | 12@7  | 22.28                | 22.10 | 22.25  | 22.35  | 22.15 | 22.38  |
|            |           | 12@13 | 22.25                | 22.10 | 22.22  | 22.28  | 22.10 | 22.34  |
|            |           | 25@0  | 22.23                | 22.07 | 22.14  | 22.24  | 22.13 | 22.17  |
| Band       | Bandwidth | RB    | 39700                | 40620 | 41540  | 39700  | 40620 | 41540  |
|            | (MHz)     |       | 2501                 | 2593  | 2685   | 2501   | 2593  | 2685   |
| 41         | 10        | 1@0   | 22.12                | 22.09 | 22.14  | 22.27  | 21.83 | 22.02  |
|            |           | 1@25  | 22.57                | 22.41 | 22.52  | 22.43  | 22.14 | 22.35  |
|            |           | 1@49  | 22.20                | 22.03 | 22.25  | 22.25  | 21.80 | 22.05  |
|            |           | 25@0  | 22.24                | 22.07 | 22.18  | 22.26  | 22.12 | 22.22  |
|            |           | 25@12 | 22.25                | 22.08 | 22.23  | 22.35  | 22.17 | 22.30  |
|            |           | 25@25 | 22.28                | 22.16 | 22.25  | 22.30  | 22.24 | 22.32  |
|            |           | 50@0  | 22.24                | 22.08 | 22.21  | 22.33  | 22.14 | 22.22  |
| Band       | Bandwidth | RB    | 39725                | 40620 | 41515  | 39725  | 40620 | 41515  |
|            | (MHz)     |       | 2503.5               | 2593  | 2682.5 | 2503.5 | 2593  | 2682.5 |
| 41         | 15        | 1@0   | 22.11                | 22.04 | 22.08  | 22.27  | 22.05 | 21.78  |
|            |           | 1@37  | 22.17                | 22.07 | 22.17  | 22.33  | 22.15 | 21.94  |
|            |           | 1@74  | 22.04                | 21.90 | 22.10  | 22.17  | 21.98 | 21.89  |
|            |           | 36@0  | 22.24                | 22.10 | 22.18  | 22.28  | 22.04 | 22.09  |
|            |           | 36@20 | 22.26                | 22.18 | 22.23  | 22.28  | 22.10 | 22.16  |
|            |           | 36@39 | 22.31                | 22.14 | 22.24  | 22.33  | 22.14 | 22.17  |
|            |           | 75@0  | 22.28                | 22.19 | 22.19  | 22.30  | 22.08 | 22.19  |
| Band       | Bandwidth | RB    | 39750                | 40620 | 41490  | 39750  | 40620 | 41490  |
|            | (MHz)     |       | 2506                 | 2593  | 2680   | 2506   | 2593  | 2680   |
| 41         | 20        | 1@0   | 22.03                | 21.80 | 21.80  | 21.95  | 21.60 | 22.00  |
|            |           | 1@49  | 22.61                | 22.33 | 22.40  | 22.41  | 22.13 | 22.57  |
|            |           | 1@99  | 22.00                | 21.76 | 21.98  | 21.93  | 21.57 | 22.10  |
|            |           | 50@0  | 22.13                | 21.96 | 21.92  | 22.17  | 22.09 | 22.07  |
|            |           | 50@24 | 22.24                | 22.05 | 22.09  | 22.27  | 22.09 | 22.23  |
|            |           | 50@50 | 22.26                | 22.11 | 22.15  | 22.24  | 22.24 | 22.27  |
|            |           | 100@0 | 22.20                | 22.07 | 22.13  | 22.23  | 22.10 | 22.18  |

**5.2.10 LTE Band 66**

|             |                  | Conducted Power(dBm) |               |               |               |               |               |               |
|-------------|------------------|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Modulation  |                  | QPSK                 |               |               | 16QAM         |               |               |               |
| Band        | Bandwidth        | RB                   | 131979        | 132322        | 132665        | 131979        | 132322        | 132665        |
|             | (MHz)            |                      | 1710.7        | 1745          | 1779.3        | 1710.7        | 1745          | 1779.3        |
| 66          | 1.4              | 1@0                  | 22.62         | 22.78         | 22.89         | 21.40         | 21.49         | 21.80         |
|             |                  | 1@3                  | 22.81         | 22.96         | 23.00         | 21.59         | 21.70         | 22.02         |
|             |                  | 1@5                  | 22.63         | 22.81         | 22.84         | 21.41         | 21.53         | 21.77         |
|             |                  | 3@0                  | 22.67         | 22.92         | 22.83         | 21.64         | 21.95         | 21.76         |
|             |                  | 3@1                  | 22.72         | 22.91         | 22.95         | 21.85         | 21.94         | 22.08         |
|             |                  | 3@3                  | 22.66         | 22.82         | 22.95         | 21.64         | 21.95         | 21.73         |
|             |                  | 6@0                  | 21.68         | 21.91         | 21.93         | 20.59         | 20.81         | 20.93         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b>            | <b>131987</b> | <b>132322</b> | <b>132657</b> | <b>131987</b> | <b>132322</b> | <b>132657</b> |
|             | <b>(MHz)</b>     |                      | <b>1711.5</b> | <b>1745</b>   | <b>1778.5</b> | <b>1711.5</b> | <b>1745</b>   | <b>1778.5</b> |
| 66          | 3                | 1@0                  | 22.71         | 22.85         | 22.90         | 21.47         | 22.28         | 21.92         |
|             |                  | 1@8                  | 22.74         | 22.86         | 22.90         | 21.50         | 22.31         | 21.88         |
|             |                  | 1@14                 | 22.63         | 22.82         | 22.91         | 21.44         | 22.32         | 21.88         |
|             |                  | 8@0                  | 21.72         | 21.87         | 21.95         | 20.75         | 21.01         | 20.86         |
|             |                  | 8@4                  | 21.73         | 21.94         | 21.94         | 20.78         | 20.99         | 21.09         |
|             |                  | 8@7                  | 21.65         | 21.82         | 21.93         | 20.71         | 21.00         | 20.86         |
|             |                  | 15@0                 | 21.63         | 21.88         | 21.86         | 20.71         | 20.90         | 20.84         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b>            | <b>131997</b> | <b>132322</b> | <b>132647</b> | <b>131997</b> | <b>132322</b> | <b>132647</b> |
|             | <b>(MHz)</b>     |                      | <b>1712.5</b> | <b>1745</b>   | <b>1777.5</b> | <b>1712.5</b> | <b>1745</b>   | <b>1777.5</b> |
| 66          | 5                | 1@0                  | 22.59         | 22.77         | 22.83         | 21.47         | 21.48         | 21.90         |
|             |                  | 1@12                 | 22.68         | 22.93         | 22.98         | 21.60         | 21.64         | 22.09         |
|             |                  | 1@24                 | 22.54         | 22.77         | 22.83         | 21.44         | 21.47         | 21.94         |
|             |                  | 12@0                 | 21.62         | 21.82         | 21.93         | 20.54         | 20.80         | 20.93         |
|             |                  | 12@7                 | 21.68         | 21.91         | 21.94         | 20.73         | 20.96         | 21.08         |
|             |                  | 12@13                | 21.68         | 21.83         | 21.90         | 20.63         | 20.83         | 20.86         |
|             |                  | 25@0                 | 21.65         | 21.79         | 21.85         | 20.61         | 20.89         | 20.87         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b>            | <b>132022</b> | <b>132322</b> | <b>132622</b> | <b>132022</b> | <b>132322</b> | <b>132622</b> |
|             | <b>(MHz)</b>     |                      | <b>1715</b>   | <b>1745</b>   | <b>1775</b>   | <b>1715</b>   | <b>1745</b>   | <b>1775</b>   |
| 66          | 10               | 1@0                  | 22.73         | 22.91         | 22.94         | 21.48         | 22.30         | 21.91         |
|             |                  | 1@25                 | 22.78         | 23.03         | 23.07         | 21.60         | 22.45         | 22.02         |
|             |                  | 1@49                 | 22.75         | 22.87         | 22.91         | 21.52         | 22.31         | 21.87         |
|             |                  | 25@0                 | 21.70         | 21.91         | 21.99         | 20.74         | 20.93         | 21.04         |
|             |                  | 25@12                | 21.70         | 21.88         | 21.95         | 20.78         | 20.94         | 20.97         |
|             |                  | 25@25                | 21.73         | 21.88         | 21.89         | 20.84         | 20.99         | 20.90         |
|             |                  | 50@0                 | 21.71         | 21.90         | 21.98         | 20.75         | 20.93         | 20.92         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b>            | <b>132047</b> | <b>132322</b> | <b>132597</b> | <b>132047</b> | <b>132322</b> | <b>132597</b> |
|             | <b>(MHz)</b>     |                      | <b>1717.5</b> | <b>1745</b>   | <b>1772.5</b> | <b>1717.5</b> | <b>1745</b>   | <b>1772.5</b> |
| 66          | 15               | 1@0                  | 22.59         | 22.79         | 22.86         | 21.71         | 22.24         | 21.77         |
|             |                  | 1@37                 | 22.69         | 22.89         | 22.96         | 21.85         | 22.35         | 21.92         |
|             |                  | 1@74                 | 22.61         | 22.81         | 22.79         | 21.82         | 22.18         | 21.78         |
|             |                  | 36@0                 | 21.73         | 21.94         | 22.02         | 20.63         | 20.86         | 20.95         |
|             |                  | 36@20                | 21.79         | 21.96         | 22.04         | 20.74         | 20.93         | 20.99         |
|             |                  | 36@39                | 21.85         | 22.01         | 22.00         | 20.75         | 20.92         | 20.94         |
|             |                  | 75@0                 | 21.81         | 21.92         | 22.03         | 20.75         | 20.91         | 21.00         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b>            | <b>132072</b> | <b>132322</b> | <b>132572</b> | <b>132072</b> | <b>132322</b> | <b>132572</b> |
|             | <b>(MHz)</b>     |                      | <b>1720</b>   | <b>1745</b>   | <b>1770</b>   | <b>1720</b>   | <b>1745</b>   | <b>1770</b>   |
| 66          | 20               | 1@0                  | 22.44         | 22.53         | 22.60         | 21.12         | 21.94         | 21.72         |
|             |                  | 1@49                 | 22.84         | 22.94         | 23.12         | 21.66         | 22.38         | 22.24         |
|             |                  | 1@99                 | 22.00         | 22.61         | 22.69         | 21.55         | 22.06         | 21.86         |
|             |                  | 50@0                 | 21.66         | 21.88         | 21.93         | 20.66         | 20.92         | 20.91         |
|             |                  | 50@24                | 21.58         | 21.82         | 21.87         | 20.75         | 20.86         | 20.92         |
|             |                  | 50@50                | 21.63         | 21.82         | 21.86         | 20.78         | 20.87         | 20.85         |
|             |                  | 100@0                | 21.72         | 21.86         | 21.90         | 20.72         | 20.88         | 20.93         |

**5.2.11 LTE Band 71**

|             |                  |           | Conducted Power(dBm) |               |               |               |               |               |
|-------------|------------------|-----------|----------------------|---------------|---------------|---------------|---------------|---------------|
| Modulation  |                  |           | QPSK                 |               |               | 16QAM         |               |               |
| Band        | Bandwidth        | RB        | 133147               | 133297        | 133447        | 133147        | 133297        | 133447        |
|             | (MHz)            |           | 665.5                | 680.5         | 695.5         | 665.5         | 680.5         | 695.5         |
| 71          | 5                | 1@0       | 22.96                | 22.79         | 22.61         | 21.61         | 21.90         | 21.49         |
|             |                  | 1@12      | 22.92                | 22.84         | 22.77         | 21.62         | 22.04         | 21.58         |
|             |                  | 1@24      | 22.89                | 22.69         | 22.65         | 21.56         | 21.89         | 21.51         |
|             |                  | 12@0      | 21.80                | 21.84         | 21.67         | 20.71         | 20.81         | 20.62         |
|             |                  | 12@7      | 21.89                | 21.90         | 21.79         | 21.00         | 21.00         | 20.77         |
|             |                  | 12@13     | 21.84                | 21.74         | 21.67         | 20.83         | 20.77         | 20.65         |
|             |                  | 25@0      | 21.80                | 21.79         | 21.61         | 20.84         | 20.78         | 20.72         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b> | <b>133172</b>        | <b>133297</b> | <b>133422</b> | <b>133172</b> | <b>133297</b> | <b>133422</b> |
|             | <b>(MHz)</b>     |           | <b>668</b>           | <b>680.5</b>  | <b>693</b>    | <b>668</b>    | <b>680.5</b>  | <b>693</b>    |
| 71          | 10               | 1@0       | 22.90                | 22.77         | 22.69         | 21.71         | 22.30         | 21.71         |
|             |                  | 1@25      | 22.91                | 22.89         | 22.78         | 21.74         | 22.47         | 21.87         |
|             |                  | 1@49      | 22.90                | 22.79         | 22.70         | 21.66         | 22.31         | 21.72         |
|             |                  | 25@0      | 21.90                | 21.82         | 21.82         | 21.02         | 20.87         | 20.83         |
|             |                  | 25@12     | 21.90                | 21.80         | 21.65         | 21.01         | 20.88         | 20.78         |
|             |                  | 25@25     | 21.88                | 21.75         | 21.73         | 21.00         | 20.85         | 20.72         |
|             |                  | 50@0      | 21.93                | 21.85         | 21.79         | 20.99         | 20.85         | 20.77         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b> | <b>133197</b>        | <b>133297</b> | <b>133397</b> | <b>133197</b> | <b>133297</b> | <b>133397</b> |
|             | <b>(MHz)</b>     |           | <b>670.5</b>         | <b>680.5</b>  | <b>690.5</b>  | <b>670.5</b>  | <b>680.5</b>  | <b>690.5</b>  |
| 71          | 15               | 1@0       | 22.91                | 22.75         | 22.62         | 22.31         | 21.72         | 21.79         |
|             |                  | 1@37      | 22.94                | 22.82         | 22.75         | 22.39         | 21.83         | 21.90         |
|             |                  | 1@74      | 22.73                | 22.76         | 22.62         | 22.31         | 21.75         | 21.82         |
|             |                  | 36@0      | 22.01                | 21.86         | 21.78         | 20.98         | 20.82         | 20.76         |
|             |                  | 36@20     | 21.96                | 21.90         | 21.86         | 20.92         | 20.96         | 20.76         |
|             |                  | 36@39     | 22.01                | 21.86         | 21.82         | 21.01         | 20.86         | 20.74         |
|             |                  | 75@0      | 21.99                | 21.84         | 21.78         | 21.05         | 20.79         | 20.79         |
| <b>Band</b> | <b>Bandwidth</b> | <b>RB</b> | <b>133222</b>        | <b>133322</b> | <b>133372</b> | <b>133222</b> | <b>133322</b> | <b>133372</b> |
|             | <b>(MHz)</b>     |           | <b>673</b>           | <b>683</b>    | <b>688</b>    | <b>673</b>    | <b>683</b>    | <b>688</b>    |
| 71          | 20               | 1@0       | 22.59                | 22.53         | 22.53         | 22.01         | 21.70         | 21.59         |
|             |                  | 1@49      | 22.93                | 22.97         | 22.92         | 22.37         | 22.07         | 22.07         |
|             |                  | 1@99      | 22.60                | 22.57         | 22.50         | 22.05         | 21.68         | 21.52         |
|             |                  | 50@0      | 21.84                | 21.84         | 21.92         | 21.01         | 20.81         | 20.90         |
|             |                  | 50@24     | 21.88                | 21.76         | 21.78         | 20.88         | 20.82         | 20.81         |
|             |                  | 50@50     | 21.90                | 21.84         | 21.74         | 20.97         | 20.83         | 20.74         |
|             |                  | 100@0     | 21.87                | 21.79         | 21.83         | 20.92         | 20.80         | 20.82         |

### 5.3 ERP OR EIRP

**Test Requirement:** FCC 47 CFR Part 2.1046(a)  
**LTE Band 2 & LTE Band 25:** FCC 47 CFR Part 24.232(c)  
**LTE Band 4 & LTE Band 66:** FCC 47 CFR Part 27.50(d)(4)  
**LTE Band 5 & LTE Band 26:** FCC 47 CFR Part 22.913(a)  
**LTE Band 41:** FCC 47 CFR Part 27.50(h)(2)  
**LTE Band 12 & 17 & Band 71:** FCC 47 CFR Part 27.50(c)(10)  
**LTE Band 26:** FCC 47 CFR Part 90.635

**Test Method:** KDB 971168 D01v03r01 Section 5.6 & ANSI C63.26-2015

**Limit:**

**FCC 47 CFR Part 22.913(a):**  
 The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

**FCC 47 CFR Part 24.232(c):**  
 Mobile and portable stations are limited to 2 watts EIRP.

**FCC 47 CFR Part 27.50(d)(4):**  
 Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

**FCC 47 CFR Part 27.50(c)(10):**  
 Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

**FCC 47 CFR Part 27.50(h)(2):**  
 Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

**FCC 47 CFR Part 90.635:**  
 (a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).  
 Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

| Antenna height (ATT) meters (feet)   | Effective radiated power (watts) <sup>1 2 4</sup> |
|--------------------------------------|---|
| Above 1,372 (4,500)                  | 65  |
| Above 1,220 (4,000) to 1,372 (4,500) | 70  |
| Above 1,067 (3,500) to 1,220 (4,000) | 75  |
| Above 915 (3,000) to 1,067 (3,500)   | 100   |
| Above 763 (2,500) to 915 (3,000)     | 140   |
| Above 610 (2,000) to 763 (2,500)     | 200   |
| Above 458 (1,500) to 610 (2,000)     | 350   |
| Above 305 (1,000) to 458 (1,500)     | 600   |
| Up to 305 (1,000)                    | <sup>3</sup> 1,000                                |

- Power is given in terms of effective radiated power (ERP).
- Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.
- Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

(ERP).

Licenses in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

**Test Procedure:**

According to KDB 412172 D01 Power Approach,

- **ERP or EIRP =  $P_T + G_T - L_c$**
- **ERP = EIRP - 2.15**

where

- **$P_T$**  = transmitter output power, expressed in dBW, dBm, or PSD;
- **$G_T$**  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
- **$L_c$**  = **signal attenuation in the connecting cable between the transmitter and antenna, in dB.**

**Test Setup:** Refer to section 4.2.1 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** See table below

**Note:** The maximum ERP/EIRP is calculated from max output power and antenna gain, the antenna gain provided by the customer, and the customer takes all the responsibilities for the accuracy of antenna gain.

5.3.1 LTE Band 2

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 23.96              | 22.99 | 33.01       | 0.2489           | 0.1991 | 2         | Pass   |
| Middle                           | 23.77              | 22.92 | 33.01       | 0.2382           | 0.1959 | 2         | Pass   |
| Highest                          | 23.59              | 22.71 | 33.01       | 0.2286           | 0.1866 | 2         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.91              | 23.43 | 33.01       | 0.2460           | 0.2203 | 2         | Pass   |
| Middle                           | 23.75              | 22.71 | 33.01       | 0.2371           | 0.1866 | 2         | Pass   |
| Highest                          | 23.55              | 22.42 | 33.01       | 0.2265           | 0.1746 | 2         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.97              | 22.71 | 33.01       | 0.2495           | 0.1866 | 2         | Pass   |
| Middle                           | 23.77              | 22.95 | 33.01       | 0.2382           | 0.1972 | 2         | Pass   |
| Highest                          | 23.54              | 22.43 | 33.01       | 0.2259           | 0.1750 | 2         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.97              | 23.54 | 33.01       | 0.2495           | 0.2259 | 2         | Pass   |
| Middle                           | 23.87              | 22.81 | 33.01       | 0.2438           | 0.1910 | 2         | Pass   |
| Highest                          | 23.74              | 22.49 | 33.01       | 0.2366           | 0.1774 | 2         | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.84              | 23.08 | 33.01       | 0.2421           | 0.2032 | 2         | Pass   |
| Middle                           | 23.78              | 23.27 | 33.01       | 0.2388           | 0.2123 | 2         | Pass   |
| Highest                          | 23.62              | 22.63 | 33.01       | 0.2301           | 0.1832 | 2         | Pass   |
| <b>Channel Bandwidth: 20MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.98              | 23.40 | 33.01       | 0.2500           | 0.2188 | 2         | Pass   |
| Middle                           | 23.96              | 23.13 | 33.01       | 0.2489           | 0.2056 | 2         | Pass   |
| Highest                          | 23.77              | 22.91 | 33.01       | 0.2382           | 0.1954 | 2         | Pass   |

5.3.2 LTE Band 4

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 23.75              | 22.74 | 30.00       | 0.2371           | 0.1879 | 1         | Pass   |
| Middle                           | 23.71              | 22.74 | 30.00       | 0.2350           | 0.1879 | 1         | Pass   |
| Highest                          | 23.84              | 22.90 | 30.00       | 0.2421           | 0.1950 | 1         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.65              | 22.40 | 30.00       | 0.2317           | 0.1738 | 1         | Pass   |
| Middle                           | 23.68              | 23.11 | 30.00       | 0.2333           | 0.2046 | 1         | Pass   |
| Highest                          | 23.76              | 22.73 | 30.00       | 0.2377           | 0.1875 | 1         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.64              | 22.31 | 30.00       | 0.2312           | 0.1702 | 1         | Pass   |
| Middle                           | 23.73              | 22.86 | 30.00       | 0.2360           | 0.1932 | 1         | Pass   |
| Highest                          | 23.75              | 22.59 | 30.00       | 0.2371           | 0.1816 | 1         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.81              | 23.22 | 30.00       | 0.2404           | 0.2099 | 1         | Pass   |
| Middle                           | 23.84              | 22.79 | 30.00       | 0.2421           | 0.1901 | 1         | Pass   |
| Highest                          | 23.95              | 22.70 | 30.00       | 0.2483           | 0.1862 | 1         | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.62              | 22.75 | 30.00       | 0.2301           | 0.1884 | 1         | Pass   |
| Middle                           | 23.69              | 23.17 | 30.00       | 0.2339           | 0.2075 | 1         | Pass   |
| Highest                          | 23.76              | 22.73 | 30.00       | 0.2377           | 0.1875 | 1         | Pass   |
| <b>Channel Bandwidth: 20MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.73              | 22.80 | 30.00       | 0.2360           | 0.1905 | 1         | Pass   |
| Middle                           | 23.76              | 23.21 | 30.00       | 0.2377           | 0.2094 | 1         | Pass   |
| Highest                          | 23.97              | 23.01 | 30.00       | 0.2495           | 0.2000 | 1         | Pass   |

### 5.3.3 LTE Band 5

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 20.36              | 19.48 | 38.45       | 0.1086           | 0.0887 | 7         | Pass   |
| Middle                           | 20.35              | 19.41 | 38.45       | 0.1084           | 0.0873 | 7         | Pass   |
| Highest                          | 20.36              | 19.44 | 38.45       | 0.1086           | 0.0879 | 7         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 20.27              | 19.11 | 38.45       | 0.1064           | 0.0815 | 7         | Pass   |
| Middle                           | 20.19              | 19.75 | 38.45       | 0.1045           | 0.0944 | 7         | Pass   |
| Highest                          | 20.22              | 19.27 | 38.45       | 0.1052           | 0.0845 | 7         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 20.29              | 19.21 | 38.45       | 0.1069           | 0.0834 | 7         | Pass   |
| Middle                           | 20.27              | 19.02 | 38.45       | 0.1064           | 0.0798 | 7         | Pass   |
| Highest                          | 20.25              | 19.37 | 38.45       | 0.1059           | 0.0865 | 7         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 20.42              | 19.42 | 38.45       | 0.1102           | 0.0875 | 7         | Pass   |
| Middle                           | 20.32              | 19.17 | 38.45       | 0.1076           | 0.0826 | 7         | Pass   |
| Highest                          | 20.35              | 19.88 | 38.45       | 0.1084           | 0.0973 | 7         | Pass   |

### 5.3.4 LTE Band 12

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 19.62              | 18.70 | 34.77       | 0.0916           | 0.0741 | 3         | Pass   |
| Middle                           | 19.54              | 18.63 | 34.77       | 0.0899           | 0.0729 | 3         | Pass   |
| Highest                          | 19.54              | 18.71 | 34.77       | 0.0899           | 0.0743 | 3         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 19.50              | 18.97 | 34.77       | 0.0891           | 0.0789 | 3         | Pass   |
| Middle                           | 19.47              | 18.48 | 34.77       | 0.0885           | 0.0705 | 3         | Pass   |
| Highest                          | 19.46              | 18.25 | 34.77       | 0.0883           | 0.0668 | 3         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 19.54              | 18.26 | 34.77       | 0.0899           | 0.0670 | 3         | Pass   |
| Middle                           | 19.54              | 18.61 | 34.77       | 0.0899           | 0.0726 | 3         | Pass   |
| Highest                          | 19.40              | 18.29 | 34.77       | 0.0871           | 0.0675 | 3         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 19.61              | 18.57 | 34.77       | 0.0914           | 0.0719 | 3         | Pass   |
| Middle                           | 19.65              | 18.42 | 34.77       | 0.0923           | 0.0695 | 3         | Pass   |
| Highest                          | 19.59              | 19.05 | 34.77       | 0.0910           | 0.0804 | 3         | Pass   |



### 5.3.5 LTE Band 17

| Channel                         | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|---------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                 | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 5MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                          | 19.11              | 18.06 | 34.77       | 0.0815           | 0.0640 | 3         | Pass   |
| Middle                          | 19.18              | 17.88 | 34.77       | 0.0828           | 0.0614 | 3         | Pass   |
| Highest                         | 19.18              | 18.28 | 34.77       | 0.0828           | 0.0673 | 3         | Pass   |
| <b>Channel Bandwidth: 10MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 19.36              | 18.13 | 34.77       | 0.0863           | 0.0650 | 3         | Pass   |
| Middle                          | 19.27              | 18.84 | 34.77       | 0.0845           | 0.0766 | 3         | Pass   |
| Highest                         | 19.35              | 18.17 | 34.77       | 0.0861           | 0.0656 | 3         | Pass   |

### 5.3.6 LTE Band 25

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 21.87              | 20.94 | 30.00       | 0.1538           | 0.1242 | 2         | Pass   |
| Middle                           | 21.67              | 20.69 | 30.00       | 0.1469           | 0.1172 | 2         | Pass   |
| Highest                          | 21.49              | 20.13 | 30.00       | 0.1409           | 0.1030 | 2         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 21.74              | 20.56 | 30.00       | 0.1493           | 0.1138 | 2         | Pass   |
| Middle                           | 21.58              | 21.07 | 30.00       | 0.1439           | 0.1279 | 2         | Pass   |
| Highest                          | 21.38              | 20.27 | 30.00       | 0.1374           | 0.1064 | 2         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 21.71              | 20.64 | 30.00       | 0.1483           | 0.1159 | 2         | Pass   |
| Middle                           | 21.58              | 20.34 | 30.00       | 0.1439           | 0.1081 | 2         | Pass   |
| Highest                          | 21.42              | 20.52 | 30.00       | 0.1387           | 0.1127 | 2         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 21.80              | 20.70 | 30.00       | 0.1514           | 0.1175 | 2         | Pass   |
| Middle                           | 21.70              | 21.14 | 30.00       | 0.1479           | 0.1300 | 2         | Pass   |
| Highest                          | 21.57              | 20.27 | 30.00       | 0.1435           | 0.1064 | 2         | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 21.69              | 20.90 | 30.00       | 0.1476           | 0.1230 | 2         | Pass   |
| Middle                           | 21.52              | 21.10 | 30.00       | 0.1419           | 0.1288 | 2         | Pass   |
| Highest                          | 21.42              | 20.42 | 30.00       | 0.1387           | 0.1102 | 2         | Pass   |
| <b>Channel Bandwidth: 20MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 21.82              | 20.94 | 30.00       | 0.1521           | 0.1242 | 2         | Pass   |
| Middle                           | 21.70              | 21.13 | 30.00       | 0.1479           | 0.1297 | 2         | Pass   |
| Highest                          | 21.53              | 20.75 | 30.00       | 0.1422           | 0.1189 | 2         | Pass   |

**5.3.7 LTE Band 26**

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 22.24              | 21.36 | 30.00       | 0.1675           | 0.1368 | 7         | Pass   |
| Middle                           | 22.24              | 21.43 | 30.00       | 0.1675           | 0.1390 | 7         | Pass   |
| Highest                          | 22.25              | 21.37 | 30.00       | 0.1679           | 0.1371 | 7         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 22.18              | 21.14 | 30.00       | 0.1652           | 0.1300 | 7         | Pass   |
| Middle                           | 22.13              | 20.96 | 30.00       | 0.1633           | 0.1247 | 7         | Pass   |
| Highest                          | 22.17              | 21.64 | 30.00       | 0.1648           | 0.1459 | 7         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 22.13              | 21.31 | 30.00       | 0.1633           | 0.1352 | 7         | Pass   |
| Middle                           | 22.10              | 21.04 | 30.00       | 0.1622           | 0.1271 | 7         | Pass   |
| Highest                          | 22.27              | 20.96 | 30.00       | 0.1687           | 0.1247 | 7         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 22.23              | 21.78 | 30.00       | 0.1671           | 0.1507 | 7         | Pass   |
| Middle                           | 22.16              | 21.27 | 30.00       | 0.1644           | 0.1340 | 7         | Pass   |
| Highest                          | 22.25              | 21.08 | 30.00       | 0.1679           | 0.1282 | 7         | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 22.17              | 21.70 | 30.00       | 0.1648           | 0.1479 | 7         | Pass   |
| Middle                           | 22.12              | 21.14 | 30.00       | 0.1629           | 0.1300 | 7         | Pass   |
| Highest                          | 22.30              | 21.31 | 30.00       | 0.1698           | 0.1352 | 7         | Pass   |

### 5.3.8 LTE Band 26 (Part 90S)

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 22.01              | 21.12 | 33.01       | 0.1589           | 0.1294 | 100       | Pass   |
| Middle                           | 22.06              | 21.01 | 33.01       | 0.1607           | 0.1262 | 100       | Pass   |
| Highest                          | 22.06              | 21.22 | 33.01       | 0.1607           | 0.1324 | 100       | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 21.88              | 20.73 | 33.01       | 0.1542           | 0.1183 | 100       | Pass   |
| Middle                           | 21.83              | 21.33 | 33.01       | 0.1524           | 0.1358 | 100       | Pass   |
| Highest                          | 21.86              | 20.92 | 33.01       | 0.1535           | 0.1236 | 100       | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 21.89              | 20.84 | 33.01       | 0.1545           | 0.1213 | 100       | Pass   |
| Middle                           | 21.88              | 20.61 | 33.01       | 0.1542           | 0.1151 | 100       | Pass   |
| Highest                          | 21.96              | 21.10 | 33.01       | 0.1570           | 0.1288 | 100       | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Middle                           | 21.96              | 21.47 | 33.01       | 0.1570           | 0.1403 | 100       | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 22.09              | 21.06 | 33.01       | 0.1618           | 0.1276 | 100       | Pass   |

### 5.3.9 LTE Band 41

| Channel                         | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|---------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                 | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 5MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                          | 23.59              | 23.59 | 33.01       | 0.2286           | 0.2286 | 2         | Pass   |
| Middle                          | 23.40              | 23.39 | 33.01       | 0.2188           | 0.2183 | 2         | Pass   |
| Highest                         | 23.49              | 23.62 | 33.01       | 0.2234           | 0.2301 | 2         | Pass   |
| <b>Channel Bandwidth: 10MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 23.81              | 23.67 | 33.01       | 0.2404           | 0.2328 | 2         | Pass   |
| Middle                          | 23.65              | 23.48 | 33.01       | 0.2317           | 0.2228 | 2         | Pass   |
| Highest                         | 23.76              | 23.59 | 33.01       | 0.2377           | 0.2286 | 2         | Pass   |
| <b>Channel Bandwidth: 15MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 23.55              | 23.57 | 33.01       | 0.2265           | 0.2275 | 2         | Pass   |
| Middle                          | 23.43              | 23.39 | 33.01       | 0.2203           | 0.2183 | 2         | Pass   |
| Highest                         | 23.48              | 23.43 | 33.01       | 0.2228           | 0.2203 | 2         | Pass   |
| <b>Channel Bandwidth: 20MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 23.85              | 23.65 | 33.01       | 0.2427           | 0.2317 | 2         | Pass   |
| Middle                          | 23.57              | 23.48 | 33.01       | 0.2275           | 0.2228 | 2         | Pass   |
| Highest                         | 23.64              | 23.81 | 33.01       | 0.2312           | 0.2404 | 2         | Pass   |

**5.3.10 LTE Band 66**

| Channel                          | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|----------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                  | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 1.4MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                           | 23.71              | 22.75 | 30.00       | 0.2350           | 0.1884 | 1         | Pass   |
| Middle                           | 23.86              | 22.85 | 30.00       | 0.2432           | 0.1928 | 1         | Pass   |
| Highest                          | 23.90              | 22.98 | 30.00       | 0.2455           | 0.1986 | 1         | Pass   |
| <b>Channel Bandwidth: 3MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.64              | 22.40 | 30.00       | 0.2312           | 0.1738 | 1         | Pass   |
| Middle                           | 23.76              | 23.22 | 30.00       | 0.2377           | 0.2099 | 1         | Pass   |
| Highest                          | 23.81              | 22.82 | 30.00       | 0.2404           | 0.1914 | 1         | Pass   |
| <b>Channel Bandwidth: 5MHz</b>   |                    |       |             |                  |        |           |        |
| Lowest                           | 23.58              | 22.50 | 30.00       | 0.2280           | 0.1778 | 1         | Pass   |
| Middle                           | 23.83              | 22.54 | 30.00       | 0.2415           | 0.1795 | 1         | Pass   |
| Highest                          | 23.88              | 22.99 | 30.00       | 0.2443           | 0.1991 | 1         | Pass   |
| <b>Channel Bandwidth: 10MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.68              | 22.50 | 30.00       | 0.2333           | 0.1778 | 1         | Pass   |
| Middle                           | 23.93              | 23.35 | 30.00       | 0.2472           | 0.2163 | 1         | Pass   |
| Highest                          | 23.97              | 22.92 | 30.00       | 0.2495           | 0.1959 | 1         | Pass   |
| <b>Channel Bandwidth: 15MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.59              | 22.75 | 30.00       | 0.2286           | 0.1884 | 1         | Pass   |
| Middle                           | 23.79              | 23.25 | 30.00       | 0.2393           | 0.2113 | 1         | Pass   |
| Highest                          | 23.86              | 22.82 | 30.00       | 0.2432           | 0.1914 | 1         | Pass   |
| <b>Channel Bandwidth: 20MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                           | 23.74              | 22.56 | 30.00       | 0.2366           | 0.1803 | 1         | Pass   |
| Middle                           | 23.84              | 23.28 | 30.00       | 0.2421           | 0.2128 | 1         | Pass   |
| Highest                          | 24.02              | 23.14 | 30.00       | 0.2523           | 0.2061 | 1         | Pass   |

5.3.11 LTE Band 71

| Channel                         | Maximum EIRP (dBm) |       |             | Maximum EIRP (W) |        |           | Result |
|---------------------------------|--------------------|-------|-------------|------------------|--------|-----------|--------|
|                                 | QPSK               | 16QAM | Limit (dBm) | QPSK             | 16QAM  | Limit (W) |        |
| <b>Channel Bandwidth: 5MHz</b>  |                    |       |             |                  |        |           |        |
| Lowest                          | 21.42              | 20.08 | 33.01       | 0.1387           | 0.1019 | 3         | Pass   |
| Middle                          | 21.30              | 20.50 | 33.01       | 0.1349           | 0.1122 | 3         | Pass   |
| Highest                         | 21.23              | 20.04 | 33.01       | 0.1327           | 0.1009 | 3         | Pass   |
| <b>Channel Bandwidth: 10MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 21.37              | 20.20 | 33.01       | 0.1371           | 0.1047 | 3         | Pass   |
| Middle                          | 21.35              | 20.93 | 33.01       | 0.1365           | 0.1239 | 3         | Pass   |
| Highest                         | 21.24              | 20.33 | 33.01       | 0.1330           | 0.1079 | 3         | Pass   |
| <b>Channel Bandwidth: 15MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 21.40              | 20.85 | 33.01       | 0.1380           | 0.1216 | 3         | Pass   |
| Middle                          | 21.28              | 20.29 | 33.01       | 0.1343           | 0.1069 | 3         | Pass   |
| Highest                         | 21.21              | 20.36 | 33.01       | 0.1321           | 0.1086 | 3         | Pass   |
| <b>Channel Bandwidth: 20MHz</b> |                    |       |             |                  |        |           |        |
| Lowest                          | 21.39              | 20.83 | 33.01       | 0.1377           | 0.1211 | 3         | Pass   |
| Middle                          | 21.43              | 20.53 | 33.01       | 0.1390           | 0.1130 | 3         | Pass   |
| Highest                         | 21.38              | 20.53 | 33.01       | 0.1374           | 0.1130 | 3         | Pass   |

## 5.4 PEAK-TO-AVERAGE RATIO

|                          |   |
|--------------------------|---|
| <b>Test Requirement:</b> | <b>LTE Band 2 &amp; LTE Band 25:</b> FCC 47 CFR Part 24.232(d)<br><b>LTE Band 4 &amp; LTE Band 66:</b> FCC 47 CFR Part 27.50(d)(5)<br><b>LTE Band 5 &amp; LTE Band 26:</b> FCC 47 CFR Part 22.913(a)<br><b>LTE Band 41:</b> FCC 47 CFR Part 27.50(d)(5)<br><b>LTE Band 12 &amp; 17 &amp; Band 71:</b> FCC 47 CFR Part 27.50(d)(5) |
| <b>Test Method:</b>      | KDB 971168 D01v03r01 Section 5.7  |
| <b>Limit:</b>            | In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB  |

**Test Procedure:**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

- Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth
- Set the number of counts to a value that stabilizes the measured CCDF curve
- Record the maximum PAPR level associated with a probability of 0.1 %

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** Please refer to Appendix A

## 5.5 99%&26DB BANDWIDTH

**Test Requirement:** FCC 47 CFR Part 2.1049(h)

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 4

**Limit:** No Limit, for reporting purposes only.

**Test Procedure:**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** Please refer to Appendix A

## 5.6 BAND EDGE AT ANTENNA TERMINALS

**Test Requirement:** LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.238(a)  
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)(1)  
LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.917(a)  
LTE Band 41: FCC 47 CFR Part 27.53(m)(4)  
LTE Band 12 & 17 & Band 71: FCC 47 CFR Part 27.53(g)  
LTE Band 26: FCC 47 CFR Part 90.691

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01

**Limit:**

**FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a):**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13 dBm.

**FCC 47 CFR Part 27.53(m)(4):**

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

**FCC 47 CFR Part 27.53(g):**

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

**FCC 47 CFR Part 90.691:**

(a)(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(a)(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

**Test Procedure:**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

For each band edge measurement:

- 1) Set the spectrum analyzer span to include the block edge frequency.
- 2) Set a marker to point the corresponding band edge frequency in each test case.
- 3) Set display line at -13 dBm
- 4) Set resolution bandwidth to at least 1% of emission bandwidth.
- 5) Set spectrum analyzer with RMS detector.
- 6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** Please refer to Appendix A

### Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-FCC4G-V1.1



## 5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

**Test Requirement:** LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.238(a)  
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)  
LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.917(a)  
LTE Band 41: FCC 47 CFR Part 27.53(m)(4)  
LTE Band 12 & Band 17 & Band 71: FCC 47 CFR Part 27.53(g)  
LTE Band 26: FCC 47 CFR Part 90.691

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01

**Limit:**

**FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a), 27.53(g), 27.53(c)(2), 90.691:**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13 dBm.

**FCC 47 CFR Part 27.53(m)(4):**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $55 + 10 \log(P)$  dB. The emission limit equal to -25 dBm.

**Test Procedure:**

The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range. b. Measuring frequency range is from 30 MHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

**Test Setup:** Refer to section 4.2.2 for details.

**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

**Test Data:** Please refer to Appendix A

### 5.8 FIELD STRENGTH OF SPURIOUS RADIATION

**Test Requirement:** LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.238(a)  
 LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)  
 LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.917(a)  
 LTE Band 41: FCC 47 CFR Part 27.53(m)(4)  
 LTE Band 12 & Band 17 & Band 71: FCC 47 CFR Part 27.53(g)  
 LTE Band 26: FCC 47 CFR Part 90.691

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01

**Receiver Setup:**

| Frequency        | Detector   | RBW     | VBW     | Remark |
|------------------|------------|---------|---------|--------|
| 0.009 MHz-30 MHz | Peak       | 10 kHz  | 30 KHz  | Peak   |
| 30 MHz-1 GHz     | Quasi-peak | 100 kHz | 300 KHz | Peak   |
| Above 1 GHz      | Peak       | 1 MHz   | 3 MHz   | Peak   |

**Limits:**

**FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a), 27.53(g), 27.53(c)(2), 90.691:**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13 dBm.

**FCC 47 CFR Part 27.53(m)(4):**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $55 + 10 \log(P)$  dB. The emission limit equal to -25 dBm.

**Test Setup:** Refer to section 4.2.1 for details.

**Test Procedures:** KDB 971168 D01v03r01 Section 7

**Equipment Used:** Refer to section 3 for details.

**Test Result:** Pass

**The worst measurement data as follows:**

**5.8.1 LTE Band 2**

| LTE Band 2_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|--------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                      | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 793.028            | -81.0                  | 13.0                           | -68.0                   | -13.0          | -55.0          | Horizontal |
| 2                        | 868.886            | -81.5                  | 13.7                           | -67.8                   | -13.0          | -54.8          | Horizontal |
| 3                        | 938.714            | -82.5                  | 14.7                           | -67.8                   | -13.0          | -54.8          | Horizontal |
| 4                        | 3720               | -67.0                  | 8.7                            | -58.3                   | -13.0          | -45.3          | Horizontal |
| 5                        | 5580               | -66.1                  | 12.1                           | -54.1                   | -13.0          | -41.1          | Horizontal |
| 6                        | 833.013            | -81.4                  | 13.1                           | -68.3                   | -13.0          | -55.3          | Vertical   |
| 7                        | 906.304            | -82.5                  | 14.4                           | -68.1                   | -13.0          | -55.1          | Vertical   |
| 8                        | 979.139            | -82.3                  | 14.9                           | -67.5                   | -13.0          | -54.5          | Vertical   |
| 9                        | 3720               | -67.0                  | 8.7                            | -58.3                   | -13.0          | -45.3          | Vertical   |
| 10                       | 5580               | -70.4                  | 12.1                           | -58.3                   | -13.0          | -45.3          | Vertical   |
| <b>Middle Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 703.731            | -81.3                  | 11.9                           | -69.4                   | -13.0          | -56.4          | Horizontal |
| 2                        | 787.475            | -81.7                  | 12.9                           | -68.8                   | -13.0          | -55.8          | Horizontal |
| 3                        | 875.013            | -81.8                  | 14.0                           | -67.8                   | -13.0          | -54.8          | Horizontal |
| 4                        | 3760               | -65.8                  | 8.8                            | -57.1                   | -13.0          | -44.1          | Horizontal |
| 5                        | 5640               | -67.0                  | 12.0                           | -55.0                   | -13.0          | -42.0          | Horizontal |
| 6                        | 760.287            | -80.9                  | 12.3                           | -68.6                   | -13.0          | -55.6          | Vertical   |
| 7                        | 945.334            | -82.9                  | 14.4                           | -68.4                   | -13.0          | -55.4          | Vertical   |
| 8                        | 979.139            | -82.6                  | 14.9                           | -67.7                   | -13.0          | -54.7          | Vertical   |
| 9                        | 3760               | -65.7                  | 8.8                            | -56.9                   | -13.0          | -43.9          | Vertical   |
| 10                       | 5640               | -66.4                  | 12.0                           | -54.4                   | -13.0          | -41.4          | Vertical   |
| <b>Highest Channel</b>   |                    |                        |                                |                         |                |                |            |
| 1                        | 698.804            | -81.3                  | 12.0                           | -69.3                   | -13.0          | -56.3          | Horizontal |
| 2                        | 938.714            | -82.4                  | 14.7                           | -67.7                   | -13.0          | -54.7          | Horizontal |
| 3                        | 992.997            | -82.4                  | 14.8                           | -67.6                   | -13.0          | -54.6          | Horizontal |
| 4                        | 3800               | -68.0                  | 8.9                            | -59.1                   | -13.0          | -46.1          | Horizontal |
| 5                        | 5700               | -66.6                  | 11.9                           | -54.7                   | -13.0          | -41.7          | Horizontal |
| 6                        | 856.76             | -81.0                  | 13.1                           | -67.8                   | -13.0          | -54.8          | Vertical   |
| 7                        | 899.958            | -81.6                  | 14.3                           | -67.3                   | -13.0          | -54.3          | Vertical   |
| 8                        | 932.141            | -81.9                  | 14.9                           | -67.0                   | -13.0          | -54.0          | Vertical   |
| 9                        | 3800               | -67.2                  | 8.9                            | -58.3                   | -13.0          | -45.3          | Vertical   |
| 10                       | 5700               | -67.7                  | 11.9                           | -55.8                   | -13.0          | -42.8          | Vertical   |

**5.8.2 LTE Band 4**

| LTE Band 4_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|--------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                      | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 821.387            | -81.3                  | 12.7                           | -68.6                   | -13.0          | -55.6          | Horizontal |
| 2                        | 925.613            | -82.9                  | 14.7                           | -68.2                   | -13.0          | -55.2          | Horizontal |
| 3                        | 965.474            | -82.7                  | 14.5                           | -68.2                   | -13.0          | -55.2          | Horizontal |
| 4                        | 3440               | -64.6                  | 7.6                            | -57.0                   | -13.0          | -44.0          | Horizontal |
| 5                        | 5160               | -62.4                  | 10.8                           | -51.6                   | -13.0          | -38.6          | Horizontal |
| 6                        | 821.387            | -81.6                  | 12.7                           | -69.0                   | -13.0          | -56.0          | Vertical   |
| 7                        | 850.76             | -81.5                  | 13.1                           | -68.4                   | -13.0          | -55.4          | Vertical   |
| 8                        | 932.141            | -82.4                  | 14.9                           | -67.6                   | -13.0          | -54.6          | Vertical   |
| 9                        | 3440               | -65.1                  | 7.6                            | -57.5                   | -13.0          | -44.5          | Vertical   |
| 10                       | 5160               | -65.8                  | 10.8                           | -55.0                   | -13.0          | -42.0          | Vertical   |
| <b>Middle Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 655.977            | -81.0                  | 11.1                           | -69.9                   | -13.0          | -56.9          | Horizontal |
| 2                        | 771.047            | -81.3                  | 12.5                           | -68.8                   | -13.0          | -55.8          | Horizontal |
| 3                        | 979.139            | -82.8                  | 14.9                           | -67.9                   | -13.0          | -54.9          | Horizontal |
| 4                        | 3465               | -64.0                  | 7.7                            | -56.3                   | -13.0          | -43.3          | Horizontal |
| 5                        | 5197.5             | -64.8                  | 10.9                           | -53.9                   | -13.0          | -40.9          | Horizontal |
| 6                        | 793.028            | -80.9                  | 13.0                           | -67.9                   | -13.0          | -54.9          | Vertical   |
| 7                        | 875.013            | -81.5                  | 14.0                           | -67.5                   | -13.0          | -54.5          | Vertical   |
| 8                        | 932.141            | -83.1                  | 14.9                           | -68.3                   | -13.0          | -55.3          | Vertical   |
| 9                        | 3465               | -64.4                  | 7.7                            | -56.7                   | -13.0          | -43.7          | Vertical   |
| 10                       | 5197.5             | -65.3                  | 10.9                           | -54.4                   | -13.0          | -41.4          | Vertical   |
| <b>Highest Channel</b>   |                    |                        |                                |                         |                |                |            |
| 1                        | 693.91             | -80.7                  | 11.9                           | -68.8                   | -13.0          | -55.8          | Horizontal |
| 2                        | 844.803            | -81.7                  | 13.2                           | -68.5                   | -13.0          | -55.5          | Horizontal |
| 3                        | 932.141            | -82.8                  | 14.9                           | -68.0                   | -13.0          | -55.0          | Horizontal |
| 4                        | 3490               | -65.0                  | 7.9                            | -57.1                   | -13.0          | -44.1          | Horizontal |
| 5                        | 5235               | -59.3                  | 11.1                           | -48.2                   | -13.0          | -35.2          | Horizontal |
| 6                        | 744.427            | -80.9                  | 11.9                           | -69.0                   | -13.0          | -56.0          | Vertical   |
| 7                        | 875.013            | -82.4                  | 14.0                           | -68.4                   | -13.0          | -55.4          | Vertical   |
| 8                        | 932.141            | -83.0                  | 14.9                           | -68.1                   | -13.0          | -55.1          | Vertical   |
| 9                        | 3490               | -65.8                  | 7.9                            | -57.9                   | -13.0          | -44.9          | Vertical   |
| 10                       | 5235               | -60.5                  | 11.1                           | -49.4                   | -13.0          | -36.4          | Vertical   |

**5.8.3 LTE Band 5**

| LTE Band 5_ 10 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|--------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                      | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 703.731            | -89.3                  | 40.7                           | -48.6                   | -13.0          | -35.6          | Horizontal |
| 2                        | 760.287            | -87.2                  | 41.1                           | -46.1                   | -13.0          | -33.1          | Horizontal |
| 3                        | 932.141            | -88.0                  | 43.3                           | -44.7                   | -13.0          | -31.7          | Horizontal |
| 4                        | 1658               | -60.3                  | 0.1                            | -60.2                   | -13.0          | -47.2          | Horizontal |
| 5                        | 2487               | -61.5                  | 4.1                            | -57.4                   | -13.0          | -44.4          | Horizontal |
| 6                        | 793.028            | -88.2                  | 41.8                           | -46.4                   | -13.0          | -33.4          | Vertical   |
| 7                        | 893.656            | -87.6                  | 42.7                           | -44.9                   | -13.0          | -31.9          | Vertical   |
| 8                        | 979.139            | -87.9                  | 43.2                           | -44.6                   | -13.0          | -31.6          | Vertical   |
| 9                        | 1658               | -59.3                  | 0.1                            | -59.2                   | -13.0          | -46.2          | Vertical   |
| 10                       | 2487               | -61.9                  | 4.1                            | -57.8                   | -13.0          | -44.8          | Vertical   |
| <b>Middle Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                        | 546.437            | -88.1                  | 37.3                           | -50.8                   | -13.0          | -37.8          | Horizontal |
| 2                        | 776.485            | -88.2                  | 41.5                           | -46.7                   | -13.0          | -33.7          | Horizontal |
| 3                        | 932.141            | -87.6                  | 43.3                           | -44.3                   | -13.0          | -31.3          | Horizontal |
| 4                        | 1673               | -62.8                  | 0.2                            | -62.6                   | -13.0          | -49.6          | Horizontal |
| 5                        | 2509.5             | -63.3                  | 4.2                            | -59.1                   | -13.0          | -46.1          | Horizontal |
| 6                        | 693.91             | -88.6                  | 40.7                           | -47.9                   | -13.0          | -34.9          | Vertical   |
| 7                        | 793.028            | -87.9                  | 41.8                           | -46.1                   | -13.0          | -33.1          | Vertical   |
| 8                        | 932.141            | -87.2                  | 43.3                           | -43.8                   | -13.0          | -30.8          | Vertical   |
| 9                        | 1673               | -62.0                  | 0.2                            | -61.8                   | -13.0          | -48.8          | Vertical   |
| 10                       | 2509.5             | -64.0                  | 4.2                            | -59.8                   | -13.0          | -46.8          | Vertical   |
| <b>Highest Channel</b>   |                    |                        |                                |                         |                |                |            |
| 1                        | 798.62             | -89.2                  | 41.8                           | -47.4                   | -13.0          | -34.4          | Horizontal |
| 2                        | 925.613            | -87.9                  | 43.2                           | -44.7                   | -13.0          | -31.7          | Horizontal |
| 3                        | 965.474            | -87.4                  | 42.8                           | -44.5                   | -13.0          | -31.5          | Horizontal |
| 4                        | 1688               | -62.9                  | 0.2                            | -62.7                   | -13.0          | -49.7          | Horizontal |
| 5                        | 2532               | -64.4                  | 4.2                            | -60.2                   | -13.0          | -47.2          | Horizontal |
| 6                        | 693.91             | -89.4                  | 40.7                           | -48.7                   | -13.0          | -35.7          | Vertical   |
| 7                        | 798.62             | -88.5                  | 41.8                           | -46.8                   | -13.0          | -33.8          | Vertical   |
| 8                        | 925.613            | -88.0                  | 43.2                           | -44.8                   | -13.0          | -31.8          | Vertical   |
| 9                        | 1688               | -62.8                  | 0.2                            | -62.6                   | -13.0          | -49.6          | Vertical   |
| 10                       | 2532               | -65.0                  | 4.2                            | -60.8                   | -13.0          | -47.8          | Vertical   |

**5.8.4 LTE Band 12**

| LTE Band 12_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 899.958            | -87.7                  | 42.9                           | -44.9                   | -13.0          | -31.9          | Horizontal |
| 2                         | 925.613            | -87.9                  | 43.2                           | -44.7                   | -13.0          | -31.7          | Horizontal |
| 3                         | 958.714            | -87.2                  | 42.9                           | -44.3                   | -13.0          | -31.3          | Horizontal |
| 4                         | 1408               | -62.3                  | -0.8                           | -63.1                   | -13.0          | -50.1          | Horizontal |
| 5                         | 2112               | -64.1                  | 1.9                            | -62.2                   | -13.0          | -49.2          | Horizontal |
| 6                         | 856.76             | -87.6                  | 41.8                           | -45.8                   | -13.0          | -32.8          | Vertical   |
| 7                         | 925.613            | -88.2                  | 43.2                           | -45.0                   | -13.0          | -32.0          | Vertical   |
| 8                         | 986.044            | -86.6                  | 43.1                           | -43.6                   | -13.0          | -30.6          | Vertical   |
| 9                         | 1408               | -62.2                  | -0.8                           | -63.0                   | -13.0          | -50.0          | Vertical   |
| 10                        | 2112               | -64.7                  | 1.9                            | -62.8                   | -13.0          | -49.8          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 401.105            | -88.8                  | 34.2                           | -54.6                   | -13.0          | -41.6          | Horizontal |
| 2                         | 850.76             | -88.1                  | 41.8                           | -46.4                   | -13.0          | -33.4          | Horizontal |
| 3                         | 932.141            | -87.2                  | 43.3                           | -43.9                   | -13.0          | -30.9          | Horizontal |
| 4                         | 1415               | -61.8                  | -0.8                           | -62.6                   | -13.0          | -49.6          | Horizontal |
| 5                         | 2122.5             | -62.7                  | 2.0                            | -60.7                   | -13.0          | -47.7          | Horizontal |
| 6                         | 646.822            | -88.6                  | 39.8                           | -48.9                   | -13.0          | -35.9          | Vertical   |
| 7                         | 809.924            | -88.1                  | 41.5                           | -46.6                   | -13.0          | -33.6          | Vertical   |
| 8                         | 938.714            | -87.8                  | 43.2                           | -44.7                   | -13.0          | -31.7          | Vertical   |
| 9                         | 1415               | -61.0                  | -0.8                           | -61.7                   | -13.0          | -48.7          | Vertical   |
| 10                        | 2122.5             | -61.8                  | 2.0                            | -59.8                   | -13.0          | -46.8          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 633.328            | -87.5                  | 39.3                           | -48.2                   | -13.0          | -35.2          | Horizontal |
| 2                         | 798.62             | -87.9                  | 41.8                           | -46.1                   | -13.0          | -33.1          | Horizontal |
| 3                         | 906.304            | -87.4                  | 42.9                           | -44.5                   | -13.0          | -31.5          | Horizontal |
| 4                         | 1422               | -62.3                  | -0.7                           | -63.0                   | -13.0          | -50.0          | Horizontal |
| 5                         | 2133               | -62.9                  | 2.0                            | -60.9                   | -13.0          | -47.9          | Horizontal |
| 6                         | 793.028            | -88.4                  | 41.8                           | -46.6                   | -13.0          | -33.6          | Vertical   |
| 7                         | 815.635            | -87.3                  | 41.5                           | -45.8                   | -13.0          | -32.8          | Vertical   |
| 8                         | 938.714            | -87.5                  | 43.2                           | -44.3                   | -13.0          | -31.3          | Vertical   |
| 9                         | 1422               | -61.2                  | -0.7                           | -61.9                   | -13.0          | -48.9          | Vertical   |
| 10                        | 2133               | -60.6                  | 2.0                            | -58.6                   | -13.0          | -45.6          | Vertical   |

**5.8.5 LTE Band 17**

| LTE Band 17_ 10 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 550.29             | -89.0                  | 37.5                           | -51.5                   | -13.0          | -38.5          | Horizontal |
| 2                         | 642.292            | -89.2                  | 39.6                           | -49.6                   | -13.0          | -36.6          | Horizontal |
| 3                         | 938.714            | -87.7                  | 43.2                           | -44.5                   | -13.0          | -31.5          | Horizontal |
| 4                         | 1418               | -60.3                  | -0.7                           | -61.0                   | -13.0          | -48.0          | Horizontal |
| 5                         | 2127               | -62.3                  | 2.0                            | -60.3                   | -13.0          | -47.3          | Horizontal |
| 6                         | 798.62             | -88.0                  | 41.8                           | -46.3                   | -13.0          | -33.3          | Vertical   |
| 7                         | 925.613            | -88.3                  | 43.2                           | -45.1                   | -13.0          | -32.1          | Vertical   |
| 8                         | 952.00             | -86.7                  | 42.9                           | -43.8                   | -13.0          | -30.8          | Vertical   |
| 9                         | 1418               | -61.3                  | -0.7                           | -62.1                   | -13.0          | -49.1          | Vertical   |
| 10                        | 2127               | -61.9                  | 2.0                            | -59.9                   | -13.0          | -46.9          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 776.485            | -88.2                  | 41.5                           | -46.7                   | -13.0          | -33.7          | Horizontal |
| 2                         | 945.334            | -87.6                  | 42.9                           | -44.7                   | -13.0          | -31.7          | Horizontal |
| 3                         | 979.139            | -87.5                  | 43.2                           | -44.3                   | -13.0          | -31.3          | Horizontal |
| 4                         | 1420               | -61.0                  | -0.7                           | -61.7                   | -13.0          | -48.7          | Horizontal |
| 5                         | 2130               | -62.8                  | 2.0                            | -60.8                   | -13.0          | -47.8          | Horizontal |
| 6                         | 637.795            | -88.1                  | 39.4                           | -48.7                   | -13.0          | -35.7          | Vertical   |
| 7                         | 765.648            | -88.2                  | 41.2                           | -47.0                   | -13.0          | -34.0          | Vertical   |
| 8                         | 945.334            | -87.8                  | 42.9                           | -44.9                   | -13.0          | -31.9          | Vertical   |
| 9                         | 1420               | -61.1                  | -0.7                           | -61.9                   | -13.0          | -48.9          | Vertical   |
| 10                        | 2130               | -63.1                  | 2.0                            | -61.1                   | -13.0          | -48.1          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 674.677            | -88.7                  | 39.9                           | -48.8                   | -13.0          | -35.8          | Horizontal |
| 2                         | 815.635            | -88.2                  | 41.5                           | -46.7                   | -13.0          | -33.7          | Horizontal |
| 3                         | 958.714            | -86.7                  | 42.9                           | -43.8                   | -13.0          | -30.8          | Horizontal |
| 4                         | 1422               | -61.5                  | -0.7                           | -62.2                   | -13.0          | -49.2          | Horizontal |
| 5                         | 2133               | -60.7                  | 2.0                            | -58.7                   | -13.0          | -45.7          | Horizontal |
| 6                         | 602.929            | -89.5                  | 38.9                           | -50.6                   | -13.0          | -37.6          | Vertical   |
| 7                         | 827.179            | -88.3                  | 41.5                           | -46.8                   | -13.0          | -33.8          | Vertical   |
| 8                         | 958.714            | -87.4                  | 42.9                           | -44.6                   | -13.0          | -31.6          | Vertical   |
| 9                         | 1422               | -61.1                  | -0.7                           | -61.9                   | -13.0          | -48.9          | Vertical   |
| 10                        | 2133               | -60.7                  | 2.0                            | -58.7                   | -13.0          | -45.7          | Vertical   |

**5.8.6 LTE Band 25**

| LTE Band 25_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 620.117            | -80.4                  | 10.3                           | -70.1                   | -13.0          | -57.1          | Horizontal |
| 2                         | 760.287            | -81.6                  | 12.3                           | -69.3                   | -13.0          | -56.3          | Horizontal |
| 3                         | 945.334            | -82.0                  | 14.4                           | -67.6                   | -13.0          | -54.6          | Horizontal |
| 4                         | 3720               | -66.3                  | 8.7                            | -57.6                   | -13.0          | -44.6          | Horizontal |
| 5                         | 5580               | -72.2                  | 12.1                           | -60.1                   | -13.0          | -47.1          | Horizontal |
| 6                         | 615.774            | -80.8                  | 10.3                           | -70.5                   | -13.0          | -57.5          | Vertical   |
| 7                         | 838.887            | -81.2                  | 13.1                           | -68.1                   | -13.0          | -55.1          | Vertical   |
| 8                         | 932.141            | -82.1                  | 14.9                           | -67.3                   | -13.0          | -54.3          | Vertical   |
| 9                         | 3720               | -66.7                  | 8.7                            | -58.1                   | -13.0          | -45.1          | Vertical   |
| 10                        | 5580               | -70.9                  | 12.1                           | -58.8                   | -13.0          | -45.8          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 776.485            | -81.8                  | 12.7                           | -69.1                   | -13.0          | -56.1          | Horizontal |
| 2                         | 833.013            | -81.0                  | 13.1                           | -67.9                   | -13.0          | -54.9          | Horizontal |
| 3                         | 945.334            | -82.3                  | 14.4                           | -67.9                   | -13.0          | -54.9          | Horizontal |
| 4                         | 3760               | -64.7                  | 8.8                            | -55.9                   | -13.0          | -42.9          | Horizontal |
| 5                         | 5640               | -66.3                  | 12.0                           | -54.3                   | -13.0          | -41.3          | Horizontal |
| 6                         | 698.804            | -81.6                  | 12.0                           | -69.6                   | -13.0          | -56.6          | Vertical   |
| 7                         | 844.803            | -81.0                  | 13.2                           | -67.9                   | -13.0          | -54.9          | Vertical   |
| 8                         | 938.714            | -81.7                  | 14.7                           | -67.0                   | -13.0          | -54.0          | Vertical   |
| 9                         | 3760               | -65.3                  | 8.8                            | -56.5                   | -13.0          | -43.5          | Vertical   |
| 10                        | 5640               | -65.2                  | 12.0                           | -53.2                   | -13.0          | -40.2          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 781.961            | -81.4                  | 12.8                           | -68.6                   | -13.0          | -55.6          | Horizontal |
| 2                         | 938.714            | -82.5                  | 14.7                           | -67.8                   | -13.0          | -54.8          | Horizontal |
| 3                         | 958.714            | -82.5                  | 14.5                           | -68.0                   | -13.0          | -55.0          | Horizontal |
| 4                         | 3810               | -66.1                  | 8.9                            | -57.2                   | -13.0          | -44.2          | Horizontal |
| 5                         | 5715               | -67.1                  | 11.9                           | -55.2                   | -13.0          | -42.2          | Horizontal |
| 6                         | 899.958            | -82.4                  | 14.3                           | -68.1                   | -13.0          | -55.1          | Vertical   |
| 7                         | 932.141            | -82.5                  | 14.9                           | -67.7                   | -13.0          | -54.7          | Vertical   |
| 8                         | 958.714            | -82.5                  | 14.5                           | -68.0                   | -13.0          | -55.0          | Vertical   |
| 9                         | 3810               | -67.0                  | 8.9                            | -58.1                   | -13.0          | -45.1          | Vertical   |
| 10                        | 5715               | -69.3                  | 11.9                           | -57.4                   | -13.0          | -44.4          | Vertical   |



**5.8.7 LTE Band 26**

| LTE Band 26_ 15 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 693.91             | -88.7                  | 40.7                           | -48.0                   | -13.0          | -35.0          | Horizontal |
| 2                         | 793.028            | -88.4                  | 41.8                           | -46.6                   | -13.0          | -33.6          | Horizontal |
| 3                         | 932.141            | -88.3                  | 43.3                           | -44.9                   | -13.0          | -31.9          | Horizontal |
| 4                         | 1663               | -62.5                  | 0.1                            | -62.4                   | -13.0          | -49.4          | Horizontal |
| 5                         | 2494.5             | -63.9                  | 4.2                            | -59.8                   | -13.0          | -46.8          | Horizontal |
| 6                         | 793.028            | -88.6                  | 41.8                           | -46.9                   | -13.0          | -33.9          | Vertical   |
| 7                         | 887.398            | -87.8                  | 42.4                           | -45.4                   | -13.0          | -32.4          | Vertical   |
| 8                         | 992.997            | -87.2                  | 43.2                           | -44.1                   | -13.0          | -31.1          | Vertical   |
| 9                         | 1663               | -60.7                  | 0.1                            | -60.6                   | -13.0          | -47.6          | Vertical   |
| 10                        | 2494.5             | -64.3                  | 4.2                            | -60.1                   | -13.0          | -47.1          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 749.676            | -88.4                  | 40.8                           | -47.6                   | -13.0          | -34.6          | Horizontal |
| 2                         | 798.62             | -88.1                  | 41.8                           | -46.3                   | -13.0          | -33.3          | Horizontal |
| 3                         | 958.714            | -88.0                  | 42.9                           | -45.1                   | -13.0          | -32.1          | Horizontal |
| 4                         | 1673               | -64.3                  | 0.2                            | -64.1                   | -13.0          | -51.1          | Horizontal |
| 5                         | 2509.5             | -64.7                  | 4.2                            | -60.5                   | -13.0          | -47.5          | Horizontal |
| 6                         | 821.387            | -87.6                  | 41.4                           | -46.2                   | -13.0          | -33.2          | Vertical   |
| 7                         | 906.304            | -88.1                  | 42.9                           | -45.2                   | -13.0          | -32.2          | Vertical   |
| 8                         | 952.000            | -87.2                  | 42.9                           | -44.3                   | -13.0          | -31.3          | Vertical   |
| 9                         | 1673               | -62.7                  | 0.2                            | -62.6                   | -13.0          | -49.6          | Vertical   |
| 10                        | 2509.5             | -64.3                  | 4.2                            | -60.1                   | -13.0          | -47.1          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 754.963            | -87.8                  | 40.9                           | -47.0                   | -13.0          | -34.0          | Horizontal |
| 2                         | 938.714            | -88.1                  | 43.2                           | -44.9                   | -13.0          | -31.9          | Horizontal |
| 3                         | 972.283            | -87.9                  | 43.0                           | -44.9                   | -13.0          | -31.9          | Horizontal |
| 4                         | 1683               | -63.3                  | 0.2                            | -63.1                   | -13.0          | -50.1          | Horizontal |
| 5                         | 2524.5             | -65.1                  | 4.2                            | -60.9                   | -13.0          | -47.9          | Horizontal |
| 6                         | 793.028            | -88.2                  | 41.8                           | -46.4                   | -13.0          | -33.4          | Vertical   |
| 7                         | 899.958            | -88.2                  | 42.9                           | -45.4                   | -13.0          | -32.4          | Vertical   |
| 8                         | 938.714            | -87.7                  | 43.2                           | -44.6                   | -13.0          | -31.6          | Vertical   |
| 9                         | 1683               | -63.1                  | 0.2                            | -62.9                   | -13.0          | -49.9          | Vertical   |
| 10                        | 2524.5             | -63.2                  | 4.2                            | -59.0                   | -13.0          | -46.0          | Vertical   |

**5.8.1 LTE Band 26 (Part 90S)**

| LTE Band 26_ 5 MHz_ QPSK |           |            |                   |             |       |        |            |
|--------------------------|-----------|------------|-------------------|-------------|-------|--------|------------|
| No.                      | Frequency | SA Reading | Correction factor | EIRP Result | Limit | Margin | Ant. Pol.  |
|                          | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm) | (dB)   |            |
| <b>Lowest Channel</b>    |           |            |                   |             |       |        |            |
| 1                        | 628.894   | -88.7      | 39.4              | -49.4       | -13.0 | -36.4  | Horizontal |
| 2                        | 698.804   | -88.5      | 40.8              | -47.7       | -13.0 | -34.7  | Horizontal |
| 3                        | 925.613   | -87.6      | 43.2              | -44.4       | -13.0 | -31.4  | Horizontal |
| 4                        | 1633      | -61.7      | 0.0               | -61.7       | -13.0 | -48.7  | Horizontal |
| 5                        | 2449.5    | -62.2      | 3.9               | -58.3       | -13.0 | -45.3  | Horizontal |
| 6                        | 781.961   | -88.5      | 41.6              | -46.9       | -13.0 | -33.9  | Vertical   |
| 7                        | 925.613   | -88.0      | 43.2              | -44.8       | -13.0 | -31.8  | Vertical   |
| 8                        | 958.714   | -87.4      | 42.9              | -44.5       | -13.0 | -31.5  | Vertical   |
| 9                        | 1633      | -60.6      | 0.0               | -60.7       | -13.0 | -47.7  | Vertical   |
| 10                       | 2449.5    | -61.5      | 3.9               | -57.6       | -13.0 | -44.6  | Vertical   |
| <b>Middle Channel</b>    |           |            |                   |             |       |        |            |
| 1                        | 793.028   | -88.0      | 41.8              | -46.2       | -13.0 | -33.2  | Horizontal |
| 2                        | 906.304   | -88.0      | 42.9              | -45.1       | -13.0 | -32.1  | Horizontal |
| 3                        | 945.334   | -87.8      | 42.9              | -44.9       | -13.0 | -31.9  | Horizontal |
| 4                        | 1638      | -61.3      | 0.0               | -61.3       | -13.0 | -48.3  | Horizontal |
| 5                        | 2457      | -62.3      | 3.9               | -58.4       | -13.0 | -45.4  | Horizontal |
| 6                        | 655.977   | -88.7      | 39.9              | -48.8       | -13.0 | -35.8  | Vertical   |
| 7                        | 893.656   | -87.8      | 42.7              | -45.1       | -13.0 | -32.1  | Vertical   |
| 8                        | 958.714   | -88.0      | 42.9              | -45.1       | -13.0 | -32.1  | Vertical   |
| 9                        | 1638      | -60.4      | 0.0               | -60.4       | -13.0 | -47.4  | Vertical   |
| 10                       | 2457      | -61.0      | 3.9               | -57.1       | -13.0 | -44.1  | Vertical   |
| <b>Highest Channel</b>   |           |            |                   |             |       |        |            |
| 1                        | 655.977   | -88.9      | 39.9              | -48.9       | -13.0 | -35.9  | Horizontal |
| 2                        | 781.961   | -88.2      | 41.6              | -46.6       | -13.0 | -33.6  | Horizontal |
| 3                        | 965.474   | -87.5      | 42.8              | -44.6       | -13.0 | -31.6  | Horizontal |
| 4                        | 1643      | -60.1      | 0.0               | -60.0       | -13.0 | -47.0  | Horizontal |
| 5                        | 2464.5    | -62.1      | 4.0               | -58.1       | -13.0 | -45.1  | Horizontal |
| 6                        | 698.804   | -88.7      | 40.8              | -47.9       | -13.0 | -34.9  | Vertical   |
| 7                        | 787.475   | -88.0      | 41.7              | -46.2       | -13.0 | -33.2  | Vertical   |
| 8                        | 958.714   | -87.5      | 42.9              | -44.6       | -13.0 | -31.6  | Vertical   |
| 9                        | 1643      | -60.9      | 0.0               | -60.9       | -13.0 | -47.9  | Vertical   |
| 10                       | 2464.5    | -62.4      | 4.0               | -58.5       | -13.0 | -45.5  | Vertical   |

| LTE Band 26_ 10 MHz_ QPSK |           |            |                   |             |       |        |            |
|---------------------------|-----------|------------|-------------------|-------------|-------|--------|------------|
| No.                       | Frequency | SA Reading | Correction factor | EIRP Result | Limit | Margin | Ant. Pol.  |
|                           | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm) | (dB)   |            |
| <b>Middle Channel</b>     |           |            |                   |             |       |        |            |
| 1                         | 689.051   | -89.2      | 40.4              | -48.7       | -13.0 | -35.7  | Horizontal |
| 2                         | 713.692   | -88.7      | 40.2              | -48.5       | -13.0 | -35.5  | Horizontal |
| 3                         | 958.714   | -87.7      | 42.9              | -44.8       | -13.0 | -31.8  | Horizontal |
| 4                         | 1638      | -61.3      | 0.0               | -61.3       | -13.0 | -48.3  | Horizontal |
| 5                         | 2457      | -63.0      | 3.9               | -59.1       | -13.0 | -46.1  | Horizontal |
| 6                         | 703.731   | -88.8      | 40.7              | -48.1       | -13.0 | -35.1  | Vertical   |
| 7                         | 793.028   | -88.2      | 41.8              | -46.4       | -13.0 | -33.4  | Vertical   |
| 8                         | 925.613   | -88.4      | 43.2              | -45.2       | -13.0 | -32.2  | Vertical   |
| 9                         | 1638      | -60.8      | 0.0               | -60.8       | -13.0 | -47.8  | Vertical   |
| 10                        | 2457      | -62.6      | 3.9               | -58.7       | -13.0 | -45.7  | Vertical   |

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-FCC4G-V1.1

**5.8.2 LTE Band 41**

| LTE Band 41_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 850.76             | -81.5                  | 13.1                           | -68.5                   | -25.0          | -43.5          | Horizontal |
| 2                         | 887.398            | -81.9                  | 13.9                           | -68.1                   | -25.0          | -43.1          | Horizontal |
| 3                         | 925.613            | -81.8                  | 14.7                           | -67.1                   | -25.0          | -42.1          | Horizontal |
| 4                         | 5012               | -64.9                  | 10.4                           | -54.5                   | -25.0          | -29.5          | Horizontal |
| 5                         | 7518               | -68.2                  | 14.2                           | -54.1                   | -25.0          | -29.1          | Horizontal |
| 6                         | 787.475            | -81.5                  | 12.9                           | -68.6                   | -25.0          | -43.6          | Vertical   |
| 7                         | 887.398            | -80.3                  | 13.9                           | -66.4                   | -25.0          | -41.4          | Vertical   |
| 8                         | 945.334            | -82.0                  | 14.4                           | -67.6                   | -25.0          | -42.6          | Vertical   |
| 9                         | 5012               | -65.4                  | 10.4                           | -54.9                   | -25.0          | -29.9          | Vertical   |
| 10                        | 7518               | -68.5                  | 14.2                           | -54.4                   | -25.0          | -29.4          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 739.214            | -81.6                  | 11.8                           | -69.8                   | -25.0          | -44.8          | Horizontal |
| 2                         | 838.887            | -82.1                  | 13.1                           | -69.0                   | -25.0          | -44.0          | Horizontal |
| 3                         | 868.886            | -81.6                  | 13.7                           | -67.9                   | -25.0          | -42.9          | Horizontal |
| 4                         | 5186               | -65.6                  | 10.9                           | -54.7                   | -25.0          | -29.7          | Horizontal |
| 5                         | 7779               | -69.2                  | 14.7                           | -54.5                   | -25.0          | -29.5          | Horizontal |
| 6                         | 698.804            | -81.3                  | 12.0                           | -69.3                   | -25.0          | -44.3          | Vertical   |
| 7                         | 787.475            | -81.9                  | 12.9                           | -69.0                   | -25.0          | -44.0          | Vertical   |
| 8                         | 932.141            | -81.7                  | 14.9                           | -66.9                   | -25.0          | -41.9          | Vertical   |
| 9                         | 5186               | -65.8                  | 10.9                           | -54.9                   | -25.0          | -29.9          | Vertical   |
| 10                        | 7779               | -69.1                  | 14.7                           | -54.4                   | -25.0          | -29.4          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 833.013            | -82.1                  | 13.1                           | -69.0                   | -25.0          | -44.0          | Horizontal |
| 2                         | 912.695            | -82.4                  | 14.4                           | -68.0                   | -25.0          | -43.0          | Horizontal |
| 3                         | 958.714            | -82.9                  | 14.5                           | -68.5                   | -25.0          | -43.5          | Horizontal |
| 4                         | 5360               | -70.5                  | 11.6                           | -59.0                   | -25.0          | -34.0          | Horizontal |
| 5                         | 8040               | -69.5                  | 15.2                           | -54.3                   | -25.0          | -29.3          | Horizontal |
| 6                         | 781.961            | -81.6                  | 12.8                           | -68.8                   | -25.0          | -43.8          | Vertical   |
| 7                         | 815.635            | -81.6                  | 12.7                           | -68.9                   | -25.0          | -43.9          | Vertical   |
| 8                         | 906.304            | -82.3                  | 14.4                           | -67.9                   | -25.0          | -42.9          | Vertical   |
| 9                         | 5360               | -70.3                  | 11.6                           | -58.7                   | -25.0          | -33.7          | Vertical   |
| 10                        | 8040               | -69.4                  | 15.2                           | -54.2                   | -25.0          | -29.2          | Vertical   |

**5.8.3 LTE Band 66**

| LTE Band 66_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 611.462            | -80.0                  | 10.1                           | -69.9                   | -13.0          | -56.9          | Horizontal |
| 2                         | 703.731            | -81.0                  | 11.9                           | -69.1                   | -13.0          | -56.1          | Horizontal |
| 3                         | 862.802            | -80.8                  | 13.4                           | -67.4                   | -13.0          | -54.4          | Horizontal |
| 4                         | 3440               | -65.0                  | 7.6                            | -57.4                   | -13.0          | -44.4          | Horizontal |
| 5                         | 5160               | -64.5                  | 10.8                           | -53.7                   | -13.0          | -40.7          | Horizontal |
| 6                         | 651.383            | -80.8                  | 11.0                           | -69.8                   | -13.0          | -56.8          | Vertical   |
| 7                         | 703.731            | -81.5                  | 11.9                           | -69.6                   | -13.0          | -56.6          | Vertical   |
| 8                         | 958.714            | -82.4                  | 14.5                           | -67.9                   | -13.0          | -54.9          | Vertical   |
| 9                         | 3440               | -65.3                  | 7.6                            | -57.7                   | -13.0          | -44.7          | Vertical   |
| 10                        | 5160               | -66.5                  | 10.8                           | -55.7                   | -13.0          | -42.7          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 713.692            | -81.2                  | 11.4                           | -69.8                   | -13.0          | -56.8          | Horizontal |
| 2                         | 833.013            | -81.6                  | 13.1                           | -68.5                   | -13.0          | -55.5          | Horizontal |
| 3                         | 932.141            | -82.3                  | 14.9                           | -67.5                   | -13.0          | -54.5          | Horizontal |
| 4                         | 3490               | -63.9                  | 7.9                            | -56.0                   | -13.0          | -43.0          | Horizontal |
| 5                         | 5235               | -61.3                  | 11.1                           | -50.2                   | -13.0          | -37.2          | Horizontal |
| 6                         | 856.76             | -81.3                  | 13.1                           | -68.2                   | -13.0          | -55.2          | Vertical   |
| 7                         | 893.656            | -82.0                  | 14.1                           | -67.9                   | -13.0          | -54.9          | Vertical   |
| 8                         | 932.141            | -82.3                  | 14.9                           | -67.4                   | -13.0          | -54.4          | Vertical   |
| 9                         | 3490               | -65.4                  | 7.9                            | -57.5                   | -13.0          | -44.5          | Vertical   |
| 10                        | 5235               | -58.8                  | 11.1                           | -47.7                   | -13.0          | -34.7          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 868.886            | -81.7                  | 13.7                           | -68.0                   | -13.0          | -55.0          | Horizontal |
| 2                         | 899.958            | -81.7                  | 14.3                           | -67.3                   | -13.0          | -54.3          | Horizontal |
| 3                         | 945.334            | -82.0                  | 14.4                           | -67.6                   | -13.0          | -54.6          | Horizontal |
| 4                         | 3540               | -67.8                  | 8.1                            | -59.7                   | -13.0          | -46.7          | Horizontal |
| 5                         | 5310               | -66.6                  | 11.4                           | -55.2                   | -13.0          | -42.2          | Horizontal |
| 6                         | 809.924            | -81.5                  | 12.7                           | -68.8                   | -13.0          | -55.8          | Vertical   |
| 7                         | 906.304            | -81.9                  | 14.4                           | -67.5                   | -13.0          | -54.5          | Vertical   |
| 8                         | 972.283            | -81.7                  | 14.6                           | -67.1                   | -13.0          | -54.1          | Vertical   |
| 9                         | 3540               | -67.8                  | 8.1                            | -59.8                   | -13.0          | -46.8          | Vertical   |
| 10                        | 5310               | -64.7                  | 11.4                           | -53.3                   | -13.0          | -40.3          | Vertical   |

**5.8.4 LTE Band 71**

| LTE Band 71_ 20 MHz_ QPSK |                    |                        |                                |                         |                |                |            |
|---------------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                       | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| <b>Lowest Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 651.383            | -89.1                  | 39.9                           | -49.3                   | -13.0          | -36.3          | Horizontal |
| 2                         | 804.252            | -88.0                  | 41.7                           | -46.4                   | -13.0          | -33.4          | Horizontal |
| 3                         | 925.613            | -87.4                  | 43.2                           | -44.2                   | -13.0          | -31.2          | Horizontal |
| 4                         | 1346               | -61.9                  | -1.0                           | -62.8                   | -13.0          | -49.8          | Horizontal |
| 5                         | 2019               | -64.2                  | 1.5                            | -62.7                   | -13.0          | -49.7          | Horizontal |
| 6                         | 550.29             | -89.2                  | 37.5                           | -51.7                   | -13.0          | -38.7          | Vertical   |
| 7                         | 771.047            | -88.4                  | 41.3                           | -47.1                   | -13.0          | -34.1          | Vertical   |
| 8                         | 952.00             | -86.8                  | 42.9                           | -43.8                   | -13.0          | -30.8          | Vertical   |
| 9                         | 1346               | -59.1                  | -1.0                           | -60.1                   | -13.0          | -47.1          | Vertical   |
| 10                        | 2019               | -62.2                  | 1.5                            | -60.7                   | -13.0          | -47.7          | Vertical   |
| <b>Middle Channel</b>     |                    |                        |                                |                         |                |                |            |
| 1                         | 708.694            | -88.4                  | 40.5                           | -48.0                   | -13.0          | -35.0          | Horizontal |
| 2                         | 862.802            | -87.7                  | 42.0                           | -45.7                   | -13.0          | -32.7          | Horizontal |
| 3                         | 945.334            | -87.3                  | 42.9                           | -44.5                   | -13.0          | -31.5          | Horizontal |
| 4                         | 1366               | -62.7                  | -0.9                           | -63.6                   | -13.0          | -50.6          | Horizontal |
| 5                         | 2049               | -65.2                  | 1.6                            | -63.6                   | -13.0          | -50.6          | Horizontal |
| 6                         | 655.977            | -89.0                  | 39.9                           | -49.1                   | -13.0          | -36.1          | Vertical   |
| 7                         | 798.62             | -88.2                  | 41.8                           | -46.5                   | -13.0          | -33.5          | Vertical   |
| 8                         | 925.613            | -87.7                  | 43.2                           | -44.5                   | -13.0          | -31.5          | Vertical   |
| 9                         | 1366               | -60.9                  | -0.9                           | -61.9                   | -13.0          | -48.9          | Vertical   |
| 10                        | 2049               | -64.4                  | 1.6                            | -62.8                   | -13.0          | -49.8          | Vertical   |
| <b>Highest Channel</b>    |                    |                        |                                |                         |                |                |            |
| 1                         | 809.924            | -88.4                  | 41.5                           | -47.0                   | -13.0          | -34.0          | Horizontal |
| 2                         | 875.013            | -88.2                  | 42.6                           | -45.6                   | -13.0          | -32.6          | Horizontal |
| 3                         | 952.000            | -87.7                  | 42.9                           | -44.8                   | -13.0          | -31.8          | Horizontal |
| 4                         | 1376               | -61.4                  | -0.9                           | -62.3                   | -13.0          | -49.3          | Horizontal |
| 5                         | 2064               | -63.7                  | 1.7                            | -62.0                   | -13.0          | -49.0          | Horizontal |
| 6                         | 793.028            | -88.4                  | 41.8                           | -46.6                   | -13.0          | -33.6          | Vertical   |
| 7                         | 875.013            | -88.6                  | 42.6                           | -46.0                   | -13.0          | -33.0          | Vertical   |
| 8                         | 938.714            | -87.8                  | 43.2                           | -44.7                   | -13.0          | -31.7          | Vertical   |
| 9                         | 1376               | -60.6                  | -0.9                           | -61.5                   | -13.0          | -48.5          | Vertical   |
| 10                        | 2064               | -63.8                  | 1.7                            | -62.2                   | -13.0          | -49.2          | Vertical   |

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-FCC4G-V1.1

### 5.9 FREQUENCY STABILITY

**Test Requirement:** FCC 47 CFR Part 2.1055 &  
 FCC 47 CFR Part 22.355 &  
 FCC 47 CFR Part 24.235 &  
 FCC 47 CFR Part 27.54

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01

**Limits:**  
**FCC 47 CFR Part 22.355, FCC 47 CFR Par 90.213**  
 The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

**FCC 47 CFR Part 24.235, FCC 47 CFR Part 27.54**  
 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

**Test Setup:** Refer to section 4.2.2 for details.

**Test Procedures:**

- 1) Use CMW 500 with Frequency Error measurement capability.
  - a) Temp. =  $-30^{\circ}$  to  $+50^{\circ}$ Ca
  - b) Voltage =low voltage, 3.4 Vdc, Normal, 3.7 Vdc and High voltage, 4.2 Vdc.
- 2) Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to  $20^{\circ}$ C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until  $+50^{\circ}$ C is reached.

- 3) Frequency Stability vs Voltage:  
 The peak frequency error is recorded (worst-case).

**Equipment Used:** Refer to section 3 for details.

**Test Result:** Pass

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature     | Deviation | Deviation | Limit  | Result |
|-------------------------------------|-----------------------|---------|-----------------|-----------|-----------|--------|--------|
|                                     | (MHz)                 | (Vdc)   | ( $^{\circ}$ C) | (Hz)      | (ppm)     | (ppm)  |        |
| <b>LTE Band 2 / 20MHz / Full RB</b> |                       |         |                 |           |           |        |        |
| QPSK                                | 18900 /<br>1880.0     | VL      | TN              | -7.02     | -0.0037   | Note 1 | Pass   |
|                                     |                       | VN      |                 | -6.15     | -0.0033   |        | Pass   |
|                                     |                       | VH      |                 | -8.55     | -0.0045   |        | Pass   |
|                                     |                       | VN      | 50              | -6.25     | -0.0033   |        | Pass   |
|                                     |                       |         | 40              | -3.32     | -0.0018   |        | Pass   |
|                                     |                       |         | 30              | -4.58     | -0.0024   |        | Pass   |
|                                     |                       |         | 20              | -6.15     | -0.0033   |        | Pass   |
|                                     |                       |         | 10              | -5.73     | -0.0030   |        | Pass   |
|                                     |                       |         | 0               | -8.12     | -0.0043   |        | Pass   |
|                                     |                       |         | -10             | -4.37     | -0.0023   |        | Pass   |
|                                     |                       |         | -20             | -5.45     | -0.0029   |        | Pass   |
|                                     |                       |         | -30             | -6.26     | -0.0033   |        | Pass   |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 4 / 20MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                | 20175 /<br>1732.5     | VL      | TN          | -5.39     | -0.0031   | Note 1 | Pass          |
|                                     |                       | VN      |             | -8.23     | -0.0048   |        | Pass          |
|                                     |                       | VH      |             | -7.73     | -0.0045   |        | Pass          |
|                                     |                       | VN      | 50          | -8.57     | -0.0049   |        | Pass          |
|                                     |                       |         | 40          | -4.62     | -0.0027   |        | Pass          |
|                                     |                       |         | 30          | -6.37     | -0.0037   |        | Pass          |
|                                     |                       |         | 20          | -8.23     | -0.0048   |        | Pass          |
|                                     |                       |         | 10          | -5.42     | -0.0031   |        | Pass          |
|                                     |                       |         | 0           | -4.63     | -0.0027   |        | Pass          |
|                                     |                       |         | -10         | -6.61     | -0.0038   |        | Pass          |
|                                     |                       |         | -20         | -2.54     | -0.0015   |        | Pass          |
|                                     |                       |         | -30         | -3.23     | -0.0019   |        | Pass          |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|-------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm) |               |
| <b>LTE Band 5 / 10MHz / Full RB</b> |                       |         |             |           |           |       |               |
| QPSK                                | 20525 / 836.5         | VL      | TN          | -6.21     | -0.0074   | ± 2.5 | Pass          |
|                                     |                       | VN      |             | -7.96     | -0.0095   | ± 2.5 | Pass          |
|                                     |                       | VH      |             | -5.64     | -0.0067   | ± 2.5 | Pass          |
|                                     |                       | VN      | 50          | -4.53     | -0.0054   | ± 2.5 | Pass          |
|                                     |                       |         | 40          | -4.58     | -0.0055   | ± 2.5 | Pass          |
|                                     |                       |         | 30          | -8.6      | -0.0103   | ± 2.5 | Pass          |
|                                     |                       |         | 20          | -7.96     | -0.0095   | ± 2.5 | Pass          |
|                                     |                       |         | 10          | -5.63     | -0.0067   | ± 2.5 | Pass          |
|                                     |                       |         | 0           | -4.58     | -0.0055   | ± 2.5 | Pass          |
|                                     |                       |         | -10         | -3.76     | -0.0045   | ± 2.5 | Pass          |
|                                     |                       |         | -20         | -3.58     | -0.0043   | ± 2.5 | Pass          |
|                                     |                       |         | -30         | -2.24     | -0.0027   | ± 2.5 | Pass          |



| Modulation                           | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|--------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                      | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 12 / 10MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                 | 23095 / 707.5         | VL      | TN          | -4.87     | -0.0069   | Note 1 | Pass          |
|                                      |                       | VN      |             | -5.06     | -0.0072   |        | Pass          |
|                                      |                       | VH      |             | -7.28     | -0.0103   |        | Pass          |
|                                      |                       | VN      | 50          | -10.46    | -0.0148   |        | Pass          |
|                                      |                       |         | 40          | -8.29     | -0.0117   |        | Pass          |
|                                      |                       |         | 30          | -10.15    | -0.0143   |        | Pass          |
|                                      |                       |         | 20          | -5.06     | -0.0072   |        | Pass          |
|                                      |                       |         | 10          | -11.54    | -0.0163   |        | Pass          |
|                                      |                       |         | 0           | -10.23    | -0.0145   |        | Pass          |
|                                      |                       |         | -10         | -9.15     | -0.0129   |        | Pass          |
|                                      |                       |         | -20         | -8.28     | -0.0117   |        | Pass          |
|                                      |                       |         | -30         | -10.88    | -0.0154   |        | Pass          |

| Modulation                           | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|--------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                      | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 17 / 10MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                 | 23790 / 710           | VL      | TN          | -9.31     | -0.0131   | Note 1 | Pass          |
|                                      |                       | VN      |             | -7.91     | -0.0111   |        | Pass          |
|                                      |                       | VH      |             | -5.29     | -0.0075   |        | Pass          |
|                                      |                       | VN      | 50          | -7.09     | -0.0100   |        | Pass          |
|                                      |                       |         | 40          | -9.16     | -0.0129   |        | Pass          |
|                                      |                       |         | 30          | -8.83     | -0.0124   |        | Pass          |
|                                      |                       |         | 20          | -7.91     | -0.0111   |        | Pass          |
|                                      |                       |         | 10          | -9.42     | -0.0133   |        | Pass          |
|                                      |                       |         | 0           | -5.63     | -0.0079   |        | Pass          |
|                                      |                       |         | -10         | -4.19     | -0.0059   |        | Pass          |
|                                      |                       |         | -20         | -6.73     | -0.0095   |        | Pass          |
|                                      |                       |         | -30         | -4.98     | -0.0070   |        | Pass          |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 25/ 20MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                | 26590 / 1905          | VL      | TN          | -12.63    | -0.0066   | Note 1 | Pass          |
|                                     |                       | VN      |             | -15.94    | -0.0084   |        | Pass          |
|                                     |                       | VH      |             | -16.48    | -0.0087   |        | Pass          |
|                                     |                       | VN      | 50          | -14.91    | -0.0078   |        | Pass          |
|                                     |                       |         | 40          | -12.51    | -0.0066   |        | Pass          |
|                                     |                       |         | 30          | -13.73    | -0.0072   |        | Pass          |
|                                     |                       |         | 20          | -15.94    | -0.0084   |        | Pass          |
|                                     |                       |         | 10          | -14.31    | -0.0075   |        | Pass          |
|                                     |                       |         | 0           | -11.88    | -0.0062   |        | Pass          |
|                                     |                       |         | -10         | -14.25    | -0.0075   |        | Pass          |
|                                     |                       |         | -20         | -13.14    | -0.0069   |        | Pass          |
|                                     |                       |         | -30         | -13.28    | -0.0070   |        | Pass          |

| Modulation                           | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit | Pass/<br>Fail |
|--------------------------------------|-----------------------|---------|-------------|-----------|-----------|-------|---------------|
|                                      | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm) |               |
| <b>LTE Band 26 / 10MHz / Full RB</b> |                       |         |             |           |           |       |               |
| QPSK                                 | 26740 / 819           | VL      | TN          | 4.02      | 0.0049    | ± 2.5 | Pass          |
|                                      |                       | VN      |             | 3.53      | 0.0043    | ± 2.5 | Pass          |
|                                      |                       | VH      |             | 5.14      | 0.0063    | ± 2.5 | Pass          |
|                                      |                       | VN      | 50          | 3.95      | 0.0048    | ± 2.5 | Pass          |
|                                      |                       |         | 40          | 4.39      | 0.0054    | ± 2.5 | Pass          |
|                                      |                       |         | 30          | 7.05      | 0.0086    | ± 2.5 | Pass          |
|                                      |                       |         | 20          | 3.53      | 0.0043    | ± 2.5 | Pass          |
|                                      |                       |         | 10          | 4.97      | 0.0061    | ± 2.5 | Pass          |
|                                      |                       |         | 0           | 2.83      | 0.0035    | ± 2.5 | Pass          |
|                                      |                       |         | -10         | 3.59      | 0.0044    | ± 2.5 | Pass          |
|                                      |                       |         | -20         | 3.91      | 0.0048    | ± 2.5 | Pass          |
|                                      |                       |         | -30         | 4.99      | 0.0061    | ± 2.5 | Pass          |

| Modulation                                      | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|---|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|   | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 26 / 10MHz / Full RB (Part 90S)</b> |                       |         |             |           |           |        |               |
| QPSK  | 26915 /<br>836.5      | VL      | TN          | 3.14      | 0.0038    | Note 1 | Pass          |
|   |                       | VN      |             | 2.72      | 0.0033    |        | Pass          |
|   |                       | VH      |             | -4.36     | -0.0052   |        | Pass          |
|   |                       | VN      | 50          | -2.45     | -0.0029   |        | Pass          |
|   |                       |         | 40          | -3.58     | -0.0043   |        | Pass          |
|   |                       |         | 30          | -6.33     | -0.0076   |        | Pass          |
|   |                       |         | 20          | 4.72      | 0.0056    |        | Pass          |
|   |                       |         | 10          | -4.36     | -0.0052   |        | Pass          |
|   |                       |         | 0           | 3.78      | 0.0045    |        | Pass          |
|   |                       |         | -10         | 5.72      | 0.0068    |        | Pass          |
|   |                       |         | -20         | -4.36     | -0.0052   |        | Pass          |
|   |                       |         | -30         | 2.39      | 0.0029    |        | Pass          |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 41/ 20MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                | 40620 / 2593          | VL      | TN          | -12.36    | -0.0042   | Note 1 | Pass          |
|                                     |                       | VN      |             | -9.11     | -0.0031   |        | Pass          |
|                                     |                       | VH      |             | -11.27    | -0.0038   |        | Pass          |
|                                     |                       | VN      | 50          | -11.83    | -0.0040   |        | Pass          |
|                                     |                       |         | 40          | -11.29    | -0.0038   |        | Pass          |
|                                     |                       |         | 30          | -10.83    | -0.0037   |        | Pass          |
|                                     |                       |         | 20          | -9.11     | -0.0031   |        | Pass          |
|                                     |                       |         | 10          | -11.05    | -0.0037   |        | Pass          |
|                                     |                       |         | 0           | -10.94    | -0.0037   |        | Pass          |
|                                     |                       |         | -10         | -12.38    | -0.0042   |        | Pass          |
|                                     |                       |         | -20         | -11.45    | -0.0039   |        | Pass          |
|                                     |                       |         | -30         | -12.34    | -0.0042   |        | Pass          |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 66/ 20MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                | 132322 /<br>1745      | VL      | TN          | -5.29     | -0.0030   | Note 1 | Pass          |
|                                     |                       | VN      |             | -4.31     | -0.0025   |        | Pass          |
|                                     |                       | VH      |             | -6.94     | -0.0040   |        | Pass          |
|                                     |                       | VN      | 50          | -9.37     | -0.0054   |        | Pass          |
|                                     |                       |         | 40          | -8.72     | -0.0050   |        | Pass          |
|                                     |                       |         | 30          | -6.43     | -0.0037   |        | Pass          |
|                                     |                       |         | 20          | -4.31     | -0.0025   |        | Pass          |
|                                     |                       |         | 10          | -5.39     | -0.0031   |        | Pass          |
|                                     |                       |         | 0           | -7.45     | -0.0043   |        | Pass          |
|                                     |                       |         | -10         | -8.31     | -0.0048   |        | Pass          |
|                                     |                       |         | -20         | -7.05     | -0.0040   |        | Pass          |
|                                     |                       |         | -30         | -6.97     | -0.0040   |        | Pass          |

| Modulation                          | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit  | Pass/<br>Fail |
|-------------------------------------|-----------------------|---------|-------------|-----------|-----------|--------|---------------|
|                                     | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm)  |               |
| <b>LTE Band 71/ 20MHz / Full RB</b> |                       |         |             |           |           |        |               |
| QPSK                                | 133322 /<br>683.0     | VL      | TN          | -5.58     | -0.0082   | Note 1 | Pass          |
|                                     |                       | VN      |             | -4.42     | -0.0065   |        | Pass          |
|                                     |                       | VH      |             | -6.26     | -0.0092   |        | Pass          |
|                                     |                       | VN      | 50          | -7.68     | -0.0112   |        | Pass          |
|                                     |                       |         | 40          | -5.73     | -0.0084   |        | Pass          |
|                                     |                       |         | 30          | -6.59     | -0.0096   |        | Pass          |
|                                     |                       |         | 20          | -4.42     | -0.0065   |        | Pass          |
|                                     |                       |         | 10          | -5.83     | -0.0085   |        | Pass          |
|                                     |                       |         | 0           | -6.62     | -0.0097   |        | Pass          |
|                                     |                       |         | -10         | -5.51     | -0.0081   |        | Pass          |
|                                     |                       |         | -20         | -2.82     | -0.0041   |        | Pass          |
|                                     |                       |         | -30         | -4.86     | -0.0071   |        | Pass          |

**Note1:** The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

## APPENDIX A RF TEST DATA

### A.1 LTE BAND 2

#### Peak to Average Ratio

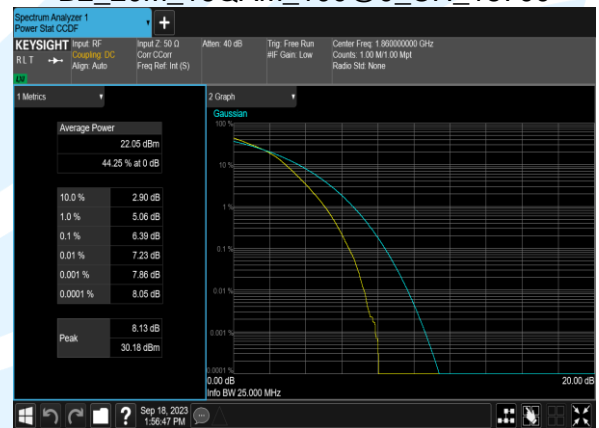
| Band | Bandwidth (MHz) | Channel | Freq (MHz) | Modulation | RB    | Result (dB) | Limit (dB) | Verdict |
|------|-----------------|---------|------------|------------|-------|-------------|------------|---------|
| 2    | 20.0            | 18700   | 1860.0     | QPSK       | 100@0 | 5.56        | 13         | PASS    |
| 2    | 20.0            | 18700   | 1860.0     | 16QAM      | 100@0 | 6.39        | 13         | PASS    |
| 2    | 20.0            | 18900   | 1880.0     | QPSK       | 100@0 | 5.62        | 13         | PASS    |
| 2    | 20.0            | 18900   | 1880.0     | 16QAM      | 100@0 | 6.38        | 13         | PASS    |
| 2    | 20.0            | 19100   | 1900.0     | QPSK       | 100@0 | 5.66        | 13         | PASS    |
| 2    | 20.0            | 19100   | 1900.0     | 16QAM      | 100@0 | 6.34        | 13         | PASS    |
| 2    | 15.0            | 18675   | 1857.5     | QPSK       | 75@0  | 5.30        | 13         | PASS    |
| 2    | 15.0            | 18675   | 1857.5     | 16QAM      | 75@0  | 6.14        | 13         | PASS    |
| 2    | 15.0            | 18900   | 1880.0     | QPSK       | 75@0  | 5.49        | 13         | PASS    |
| 2    | 15.0            | 18900   | 1880.0     | 16QAM      | 75@0  | 6.16        | 13         | PASS    |
| 2    | 15.0            | 19125   | 1902.5     | QPSK       | 75@0  | 5.40        | 13         | PASS    |
| 2    | 15.0            | 19125   | 1902.5     | 16QAM      | 75@0  | 6.13        | 13         | PASS    |
| 2    | 10.0            | 18650   | 1855.0     | QPSK       | 50@0  | 5.47        | 13         | PASS    |
| 2    | 10.0            | 18650   | 1855.0     | 16QAM      | 50@0  | 6.25        | 13         | PASS    |
| 2    | 10.0            | 18900   | 1880.0     | QPSK       | 50@0  | 5.67        | 13         | PASS    |
| 2    | 10.0            | 18900   | 1880.0     | 16QAM      | 50@0  | 6.32        | 13         | PASS    |
| 2    | 10.0            | 19150   | 1905.0     | QPSK       | 50@0  | 5.54        | 13         | PASS    |
| 2    | 10.0            | 19150   | 1905.0     | 16QAM      | 50@0  | 6.24        | 13         | PASS    |
| 2    | 5.0             | 18625   | 1852.5     | QPSK       | 25@0  | 5.49        | 13         | PASS    |
| 2    | 5.0             | 18625   | 1852.5     | 16QAM      | 25@0  | 6.14        | 13         | PASS    |
| 2    | 5.0             | 18900   | 1880.0     | QPSK       | 25@0  | 5.65        | 13         | PASS    |
| 2    | 5.0             | 18900   | 1880.0     | 16QAM      | 25@0  | 6.33        | 13         | PASS    |
| 2    | 5.0             | 19175   | 1907.5     | QPSK       | 25@0  | 5.68        | 13         | PASS    |
| 2    | 5.0             | 19175   | 1907.5     | 16QAM      | 25@0  | 6.39        | 13         | PASS    |
| 2    | 3.0             | 18615   | 1851.5     | QPSK       | 15@0  | 5.44        | 13         | PASS    |
| 2    | 3.0             | 18615   | 1851.5     | 16QAM      | 15@0  | 6.16        | 13         | PASS    |
| 2    | 3.0             | 18900   | 1880.0     | QPSK       | 15@0  | 5.57        | 13         | PASS    |
| 2    | 3.0             | 18900   | 1880.0     | 16QAM      | 15@0  | 6.35        | 13         | PASS    |
| 2    | 3.0             | 19185   | 1908.5     | QPSK       | 15@0  | 5.53        | 13         | PASS    |
| 2    | 3.0             | 19185   | 1908.5     | 16QAM      | 15@0  | 6.38        | 13         | PASS    |
| 2    | 1.4             | 18607   | 1850.7     | QPSK       | 6@0   | 5.31        | 13         | PASS    |
| 2    | 1.4             | 18607   | 1850.7     | 16QAM      | 6@0   | 6.13        | 13         | PASS    |
| 2    | 1.4             | 18900   | 1880.0     | QPSK       | 6@0   | 5.50        | 13         | PASS    |
| 2    | 1.4             | 18900   | 1880.0     | 16QAM      | 6@0   | 6.21        | 13         | PASS    |
| 2    | 1.4             | 19193   | 1909.3     | QPSK       | 6@0   | 5.52        | 13         | PASS    |
| 2    | 1.4             | 19193   | 1909.3     | 16QAM      | 6@0   | 6.34        | 13         | PASS    |

#### Test Graphs

B2\_20M\_QPSK\_100@0\_CH\_18700



B2\_20M\_16QAM\_100@0\_CH\_18700



B2\_20M\_QPSK\_100@0\_CH\_18900



B2\_20M\_16QAM\_100@0\_CH\_18900



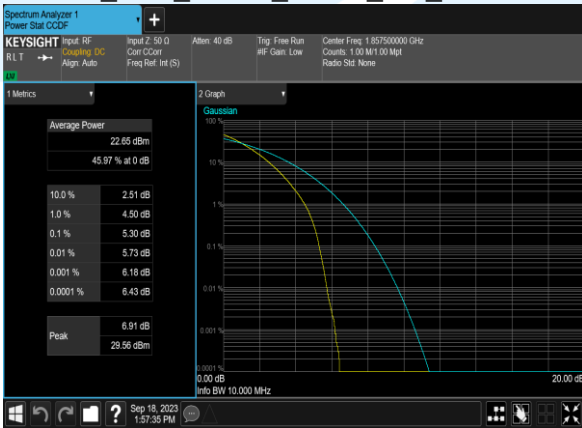
B2\_20M\_QPSK\_100@0\_CH\_19100



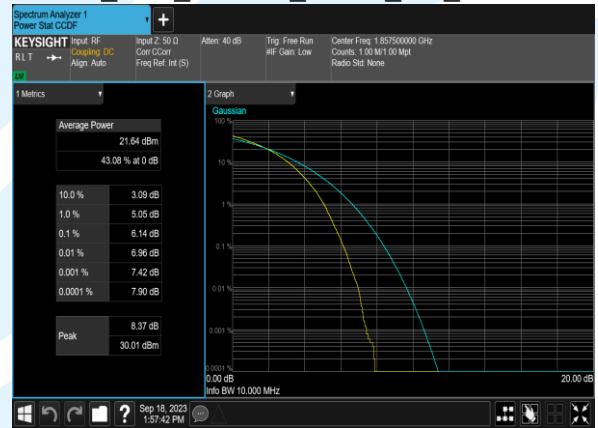
B2\_20M\_16QAM\_100@0\_CH\_19100



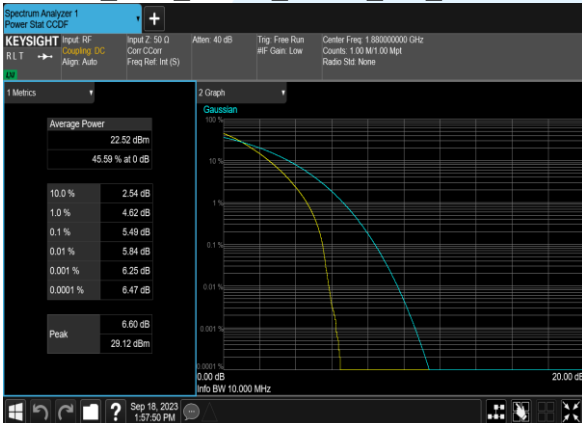
B2\_15M\_QPSK\_75@0\_CH\_18675



B2\_15M\_16QAM\_75@0\_CH\_18675



B2\_15M\_QPSK\_75@0\_CH\_18900



B2\_15M\_16QAM\_75@0\_CH\_18900

